



2006-2007 ANNUAL REPORT

anniversary edition





Aldo Leopold (1887–1948),
the conservationist, ecologist,
and educator for whom the
Center was named.



Vision

The Leopold Center for Sustainable
Agriculture explores and cultivates
alternatives that secure healthier
people and landscapes in Iowa
and the nation.

Information for this report was compiled by Leopold Center staff with the help of its researchers and educators, who are committed to improving Iowa agriculture and the lives of Iowans.

Edited by Mary Adams > Photos by Leopold Center staff except where noted >
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Table of Contents

| | | | | | |
|--------------------------------|----|---|----|--|----|
| Director's Message..... | 4 | Advisory Board..... | 11 | Practical Farmers of Iowa..... | 24 |
| Horizons..... | 6 | Kirschenmann..... | 12 | Agricultural Systems Initiative..... | 26 |
| Staff..... | 7 | Shivvers Lecture..... | 14 | Iowa Learning Farm Project..... | 28 |
| Administrative Promotions..... | 8 | Core Issue Dialogue..... | 15 | Graduate Program..... | 30 |
| Staff Shifts..... | 9 | Burrito Love..... | 16 | Marketing & Food Systems Initiative..... | 33 |
| Finances..... | 10 | Spencer Award..... | 17 | Ecology Initiative..... | 38 |
| | | Grapes and Wine..... | 18 | Policy Initiative..... | 43 |
| | | Long-term Agro-ecological Research..... | 20 | Competitive Grants Projects..... | 44 |
| | | | | Twenty Years And Still Kicking..... | 53 |
| | | | | Timeline..... | 54 |

Mission

The Leopold Center was established by the Iowa Legislature as part of the Iowa Groundwater Protection Act of 1987. Its legislatively mandated goals are to identify and reduce negative environmental and socio-economic impacts of agricultural practices, contribute to the development of profitable farming systems that conserve natural resources, and cooperate with Iowa State University Extension to inform the public of new findings.



Director's Message

Our 20th anniversary year has been filled with quiet warmth and thoughtful reflection, reliving the accomplishments of our work with key partners. It has been valuable for all of us to look back as if to a sunset and remembrances of the past while we celebrated the successes of two decades. We have come a long way from the uncertain days of 1988, and our beginnings as an Iowa innovator.

We have invested energy and time into assessing both the significant accomplishments and continuing needs for Iowa farmers. Our research record is replete with practical approaches to today's rapidly changing kaleidoscope of problems facing Iowa's rural landscape. This annual report illustrates the broad variety and depth of approaches needed to impact and revitalize our agriculture and people on the land. Today we stand proud in what we have been able to initiate with partners and collaborators statewide. But, much more is needed. We've used this milestone year as a starting place to internally recalibrate the Leopold Center.

The horizon of 1988 seems far distant, but at times uncomfortably close and eerily similar when we look at the unmet challenges still facing our state. Water quality remains a vital issue for Iowans and continues to be under assault by the actions and attitudes that underlie our current (but changing) agricultural and land use practices. Our soils continue to suffer unacceptable losses and degradation. We squander time and natural resources as we continue to debate and define the painfully obvious need to confront the loss of these natural resources and their value to Iowa, our people, and our communities.

We face the new day's agricultural horizon with realism and optimism. We wonder what the next 20 years will bring us? Will we be able to say that we "solved" the water quality dilemma? Will continuing soil losses still be viewed as an acceptable though regrettable outcome of tomorrow's agriculture? Will we be content with the loss of longtime farmers, the inability to welcome or sustain new farmers, and the resulting dramatically changed rural community landscape?



Our next 20 years should be filled with unique opportunities, those anticipated and those yet unknown. With your help, we at the Center, more than ever, need to continue to be that unique place where the questioning voices rippling over the horizon for the next 20 years will be heard. We need to ask the questions that are not being asked, and find the commonality of practices and good will that brings all agriculture together for a shared cause.

We pledge to push forward, to speak out, to listen and to respond to the opportunities beyond this newest horizon. Please join us as we look toward the next 20 years.

Jerry DeWitt
Director

Where do I begin in describing the impact of the Leopold Center for Sustainable Agriculture on my work in sustainable agriculture? There have been so many threads of connectivity and interrelationships. Jerry DeWitt was my first contact at ISU, where he was already nationally recognized for his work in integrated pest management and the promotion of more sustainable farming techniques, followed by Dennis Keeney, who wisely funded my first Focus Group with organic farmers in Iowa in 1997, and then Fred Kirschenmann, who opened the door to work with organic certification agencies and policy makers. With LCSA support, I set up the largest completely randomized (to avoid any bias), replicated trial comparing organic and conventional grain crops in the United States at the ISU Neely-Kinyon Farm, and have interacted with thousands of farmers and agricultural professionals in getting the word out on the sustainability of organics. Through the LCSA work, I became eligible for funding from USDA-Integrated Organic Program, SARE, National Institute of Health, and numerous organic organizations that sought scientific studies on organic production and marketing. It has been a partnership of extreme importance, and one that the organic community of Iowa recognizes and values.

~ Kathleen Delate, Associate Professor of Agronomy and Horticulture, and Organic Specialist, Iowa State University

Jerry DeWitt



Horizons

The ancients thought the horizon was akin to the curved part of the plow, an apt metaphor for an agricultural organization such as the Leopold Center. Modern day viewers most likely see the horizon as the apparent junction of the earth and the sky, the place where the elements of nature interface in a spectacular fashion twice a day. The basic juxtaposition and healthy interaction of natural resources is a critical topic the Leopold Center has questioned, studied, and sought to sustain over the past two decades.

Yet another definition of horizon is “the range of perception or experience.” Sprinkled throughout this annual report for 2006-07, the 20th year of the existence for the Leopold Center, are thoughts from the Center’s three directors, comments from researchers who have helped to carry out the Center’s mission, and a timeline of significant events in the life of the Center. They provide a compelling backdrop to the activities of the anniversary year at hand—new competitive grants carefully focused within the Center’s research initiatives; continuing partnerships with Iowa State University in agronomy, horticulture, animal science, and sustainable agriculture graduate studies; putting theories to the rigorous farmland test within Practical Farmers of Iowa and ISU demonstrations; and bringing varied, challenging voices to the ISU campus to spread the word(s) about sustainable agriculture.

Horizon also refers to something that might be attained. Even as the Center was celebrating its first 20 years and honoring the many Iowans who shaped, guided, and contributed to its successes, there was the stark realization that so much remains to be done. Indeed, far more than the Leopold Center is capable of tackling at one time! So, we looked to our board, partners, and stakeholders both rural and urban for the right signals to the future needs and desires of Iowa agriculture—and where to position the Leopold Center to help attain those goals.

After 20 years, the horizon is still there in the distance, compelling the Leopold Center to move onward. As Rossiter Raymond wrote, “. . . a horizon is nothing, save the limit of our sight.”

Mary Adams
editor



Leopold Center *Staff* 2006-2007



(l to r) Mary Adams, Rich Pirog, Frederick Kirschenmann, Laura Miller, Karen Jacobson, Blue Maas, Jerry DeWitt, Malcolm Robertson, Jeri L. Neal and Beth Larabee

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The role of the Leopold Center, in my opinion, has been pivotal at a crucial time for sustainable agriculture. The Center has served to encourage (perhaps demand) interdisciplinary work—a critical element for agriculture to become truly sustainable. Further, it has supported work like my own that analyzes the coexistence of both domestic and wild species, another hallmark of sustainability. Perhaps most importantly, the Leopold Center has emphasized and supported getting results out to farmers and other land owners who can actually use it on the land so that important work doesn't just sit in some obscure academic journal. These, I think, are the Center's most important contributions.

~ Jim Pease, Associate Professor and Extension Wildlife Specialist, Iowa State University





Jerry DeWitt



Rich Pirog

Administrative Promotions

Jerry DeWitt was rewarded with a significant upgrade in status from interim director to permanent director of the Leopold Center for a three-year term, to run through January 1, 2010. He had been appointed to the interim post November 1, 2005. The appointment assured the Center of continuity and stability of leadership for the near future.

Rich Pirog, longtime Center staff member, was named associate director of the Leopold Center on February 1. He will continue to lead the Marketing and Food Systems Initiative and the Value Chain Partnerships for a Sustainable Agriculture project. He will manage the competitive grant process and will conduct ongoing assessment and evaluation of Center programs. Pirog was hired in 1990 as the Center's first education coordinator, and is well known nationally for his research on "food miles" and ecolabels as well as work on food value chains.

The goal of my research and education program at Iowa State University is to put more live, rapidly growing crop plants into the Iowa landscape in April and May. This is an ambitious goal considering the Iowa landscape has been dominated by summer annual crops for the past several decades. Research made possible through the efforts of the Leopold Center has clearly shown that winter, spring, and perennial crops can improve agricultural sustainability in the state by substantially lowering soil and nutrient losses from crop fields. The Leopold Center has been an essential partner to my program by supplying support for research and outreach for assessing and improving the production of triticale, wheat, red clover, eastern gamagrass, and canola.

~ Lance Gibson, Associate Professor of Agronomy, Iowa State University





Malcom Robertson



Beth Larabee



Blue Maas



Carol Brown

Staff Shifts

Malcolm Robertson, program specialist, joined the Leopold Center staff in mid-2006. He works on special projects and supplies applied economics expertise for the research initiatives. Robertson, a native of Zimbabwe, first became interested in sustainable agriculture concepts when he worked as a senior horticulturist for Zimbabwe's largest chemical company. He has been a program manager for the ISU Corn and Soybean Initiative and was employed at Clemson University while studying for a master's degree in agricultural and applied economics.

Beth Larabee, program assistant, works with the Value Chain Partnerships for a Sustainable Agriculture project and the Marketing and Food Systems Initiative. She came to the Center from the Iowa Learning Farm program, where she spent two years as a research associate collecting samples and recording observations at 31 cooperating farms. She grew up on a farm in western Nebraska and her academic background includes a B.S. in agronomy and an M.S. in soil science. She replaced Andrew Hug, who moved to another job at Iowa State.

Blue Maas, office secretary, was most recently on the staff at ISU's computer science department. In 15 years at Iowa State, she has held positions in the departments of forestry and economics, the graduate college, and the environmental health and safety office. Maas grew up on a Williamsburg, Iowa family farm. She replaced Sheryl Johnson, who moved to Florida.

Carol Brown, communications specialist for the Iowa Learning Farm (ILF) project (now being administered by the Leopold Center), came to ISU in May. She had been communications and publications director for Iowa Wesleyan College in Mount Pleasant for 14 years. She will spend approximately 20 percent of her time on Leopold Center communications projects beyond her ILF activities.

Finances

Leopold Center for Sustainable Agriculture FY07 July - June

In fiscal year 2006-2007, revenue for the Leopold Center included \$1.381 million from nitrogen fertilizer and pesticide registration fees collected under rules established by the Iowa Groundwater Protection Act of 1987. This represents a decrease of \$153,000 or 10 percent from the previous year. General Revenue Program funds from state appropriations to Iowa State University totaled \$545,526 for the same period. The increase in General Revenue Program funds over the previous year represents one additional staff person and an average 2.5 percent increase in salaries for all other non-academic staff.

OPERATIONAL EXPENDITURES:

| | |
|---------------------------------------|------------|
| Salaries & Benefits | \$ 669,717 |
| Travel | 21,471 |
| Meeting Expenses | 2,055 |
| 20th Anniversary Expenses | 9,024 |
| Services, Information & Communication | 98,713 |
| Supplies | 15,201 |
| Utilities/Maintenance & Repair | 663 |
| Miscellaneous | 16 |
| Total Operational Expenditures | \$ 816,860 |

RESEARCH AND GRANTS:

| | |
|--|--------------|
| Competitive and Initiative Grants | \$ 1,028,004 |
| Wallace Chair Support | 20,000 |
| PFI Partnership | 50,000 |
| LTAR Support | 50,000 |
| Ag Systems — Management & Performance Initiative | 25,000 |
| Grape and Wine Program | 25,000 |
| Graduate Assistantship Support — AnSc | 20,000 |
| Graduate Assistantship Support — GPSA | 20,590 |
| Total Research and Grants | \$ 1,238,594 |

INITIATIVE COMMITMENTS:

| | |
|-----------------------------------|-----------|
| Ecological Systems Research | \$ 41,653 |
| Marketing & Food Systems Research | 19,061 |
| Policy Research | 34,845 |
| Total Initiative Commitments | \$ 95,559 |

| | |
|-------|-------------|
| TOTAL | \$2,151,013 |
|-------|-------------|





Advisory Board

2006-2007 Leopold Center

Lyle Asell

administrator
Iowa Department of Natural Resources

Doug Beckman

farmer
Iowa Farm Bureau Federation, Glenwood

Russell Brandes

farmer
Soil Conservation Committee, Hancock

Kelley Donham

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University of Iowa

Thomas Fogarty

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University of Northern Iowa*

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Maynard Hogberg

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Iowa State University*

Erin Irish

professor of biological sciences
University of Iowa

Laura Jackson

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University of Northern Iowa

Paul Lasley

professor of rural sociology
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Aaron Heley Lehman

farmer
Iowa Farmers Union, Polk City

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farmer
Practical Farmers of Iowa, Sutherland
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farmer
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Iowa State University*

Maury Wills

bureau chief
Agricultural Diversification and Market
Development, Iowa Department of
Agriculture and Land Stewardship*

Wendy Wintersteen

dean
College of Agriculture and Life Sciences
Iowa State University*

(*Board members who served
only a portion of the fiscal year)

Collaborations with the Leopold Center for Sustainable Agriculture have benefited the fruit and vegetable growers in Iowa and positively impacted my work in sustainable agriculture. The Center, in its early years, provided support for grower conferences that helped to address sustainable production issues. Through its research grants program over the years in ecology and marketing, graduate students, colleagues and I worked on and continue to investigate critical issues to provide new information about sustainable fruit growing practices. We are proud of the education, research and outreach programs in sustainable horticulture in Iowa that are only possible because of the partnership with the Leopold Center for Sustainable Agriculture.

~ Gail R. Nonnecke, Professor of Horticulture, Iowa State University



Kirschenmann continues sustainable agriculture outreach and engagement

Fred Kirschenmann, the Leopold Center's Distinguished Fellow, is in charge of a varied portfolio of national and international sustainable agriculture issues. He continues to maintain an active schedule of lectures, meetings, fundraising and organizing. Among the key ventures absorbing his time this year:

Agriculture of the Middle (AOTM). With the help of two grants, one from SYSCO and one from Bon Appétit, at least three new grower groups, one potentially in Iowa, will be recruited to organize within farmer marketing networks, or values-based, value chain marketing units. AOTM is in active partnership with the National Farmers Union and also may partner with the Wallace Center and the Sustainable Food Laboratory on additional projects.

Much effort has been devoted to the Association of Family Farms (AFF), which is the business development component of AOTM. A 20-member board of directors of AFF is in place. The group has completed the set of standards for AFF (with the exception of seafood standards, which several people continue to work on) and has succeeded in bringing an entirely electronic certification program to the United States through the Food Alliance and International Certification Services. This program, which is now operational, could revolutionize certification systems for the entire sustainable agriculture and organic world.

The research component of AOTM, with the help of leadership by Steve Stevenson of the University of Wisconsin, has been adopted as a USDA-Cooperative State Research, Education, and Extension Service (CSREES) project and numerous research projects are already underway with support set for the next four years. The intent is to continue to identify research needs from on-the-ground experience through AFF, which will then be communicated to the research team.

Scott Marlow (Rural Advancement Foundation International-USA, director of community-based agriculture) and Kate Clancy (Senior Fellow, Endowed Chair in Agricultural Systems, University of Minnesota) on the AOTM Policy Task Force have been successful in integrating the AOTM priorities with the National Sustainable Ag Coalition's priorities and have brought some of those issues before policy makers. Team members have raised approximately \$83,000 to hire a part-time consultant to develop a business plan and attend to day-to-day operations through September 2007. Through connections with the National Farmers Union, the group will approach the Gates Foundation for a major grant to fund long-term efforts until this marketing coalition can become self-sustaining, and will submit another grant application to the W.K. Kellogg Foundation as a bridge to the Gates funding.





Fred Kirschenmann



Whiterock



Fred Kirschenmann

Pew National Commission on Industrial Farm Animal Production. The Commission continues to conduct research, solicit testimony, and meet to discuss findings and develop recommendations. The two-year group undertaking will issue a national report to the public in March 2008.

Whiterock Conservancy. Kirschenmann serves as chair of the Board of Directors for the Conservancy, which eventually will encompass 5,000 acres of land in west central Iowa donated by the Roswell Garst family. Whiterock has been selected as one of the first three “Great Places of Iowa” along with the town of Coon Rapids. An ecologist has been hired and is developing plans for research in ecologically sound sustainable agriculture practices with the goal of making Whiterock a significant demonstration site. Tolif Hunt was hired as executive director for the Conservancy.

Silos and Smokestacks National Heritage Area. Kirschenmann also chairs the Board of Directors for Silos and Smokestacks, which promotes tours that highlight agricultural practices and historic landmarks in the northeast quadrant of Iowa. Silos and Smokestacks is exploring the possibility of developing a video simulation game in cooperation with faculty and students at Iowa State University. The game would help non-farmers better understand what life on a modern Iowa farm is like and would illustrate the decisions and challenges that farmers face on a daily basis.

Stone Barns Center for Food and Agriculture. Kirschenmann is a board member for the Stone Barns Center just outside of New York City. The board is hoping to establish a working relationship between the New York center and the Leopold Center to explore ways that rural and urban citizens can better understand sustainable agriculture and mutually support each other’s work.

Kirschenmann currently serves on four other boards:

- > Wholesome Harvest Board of Directors in Iowa
- > Food Alliance Board in Oregon, California and the Midwest
- > International Certification Services Board in North Dakota
- > Union of Concerned Scientists Board of Advisors, which meets in Chicago, Illinois; Washington, D.C.; and San Francisco, California

Other activities. Kirschenmann made numerous speeches in FY2007, among them keynote addresses and other plenary presentations at these gatherings:

- > Society of Nutrition Education National Conference, San Francisco
- > Ecological Society of America annual conference, Memphis, Tennessee
- > IFOAM International Organic Animal Agriculture Conference, Minneapolis, Minnesota
- > Virginia Farm Bureau annual meeting, Danville, Virginia

The Leopold Center has contributed to my work in sustainable agriculture in numerous ways. Recognizing that in spite of the importance of forage crops to sustainable systems, sources of funding forage research are limited, the Leopold Center has provided me with the opportunity to conduct research which would have been difficult to fund through other means. On a broader scale, providing me the opportunity to lead an interdisciplinary issue team in the Leopold Center placed me in the unique position of interacting with more than 30 research and extension faculty from ISU and Dordt College, state and governmental agency personnel, and producers for nearly 14 years to prioritize, develop, and implement research and educational programs which optimized the profitability of beef cow-calf production while enhancing environmental quality. Furthermore, the continuous funding of this team permitted greater opportunities to evaluate the long-term sustainability of agricultural systems than the two- or three-year grants that are commonly available through other competitive grant programs. ~ Jim Russell, Professor of Animal Science, Iowa State University

- > Washington State Food and Nutrition Council annual conference, Des Moines, Washington
- > Business for Social Responsibility annual meeting, New York, New York
- > Chefs Collaborative National Seafood Summit, Jacksonville, Florida
- > Local Foods Policy Conference, Morris, Minnesota, organized by Rep. Collin Peterson (D-MN)
- > Harvard Medical School Center for Global Health and Environment course, Boston, Massachusetts

Kirschenmann has participated in an increasing number of forums and seminars that address the connections among farm, food and health concerns.

He believes that these connections will be very important to the Leopold Center as well as to the sustainable agriculture movement generally since there is a burgeoning coalition between sustainable agriculture, professional nutrition associations and health care professionals that heralds a powerful force for change and establishment of new markets in the sustainable agriculture arena.

Kirschenmann wrote on pressing sustainable agriculture issues in an article published in the March/April 2007 issue of *Agronomy Journal*. He co-authored a chapter with George Bird in the book edited by Charles Francis, Raymond Poincelot and George Bird, *Developing and Extending Sustainable Agriculture: A New Social Contract*.

Wendell Berry

Wendell Berry shines at Shivvers Lecture

When Fred Kirschenmann asked Wendell Berry to present the 2007 Shivvers Lecture at Iowa State, Berry countered with the suggestion that a rousing conversation among farmers would be more fun for everyone rather than the standard speech. And, as usual, the “poet laureate” for sustainable agriculture was right.

On April 15, more than 750 people showed up at the ISU Memorial Union’s Great Hall to hear Berry; his daughter, vinter Mary Berry Smith; and Iowa farmers Laura Krouse and Francis Thicke opine about all things agricultural. Berry and his daughter operate farms a few miles apart in Kentucky, but the legendary Wendell also is a philosopher, college English professor and respected author. Laura Krouse teaches biology at Cornell College in addition to managing a small CSA farm. Francis Thicke operates a grass-based dairy in Fairfield, and has spent time in Washington, D.C. working for the



U.S. Department of Agriculture. The depth and breadth of experiences made this group well-qualified to answer the many and varied questions that the audience lobbed at them during the two-hour conversation.

The Shivvers lecture series serves as a memorial to John Shivvers who farmed near Knoxville. His family has designated the Leopold Center to help manage and promote the annual series of presentations. This year’s edition was designated as a part of the Leopold Center’s 20th anniversary celebration.

In addition to the wide-ranging Shivvers Lecture discussion on all aspects of farming, good and bad, earlier that day Wendell and Mary Berry Smith shared lunch and observations with 20 clearly awed students from the ISU Graduate Program for Sustainable Agriculture.



Jerry DeWitt



DeWitt opens

core issue dialogue

Shortly after his appointment as permanent director of the Leopold Center, Jerry DeWitt convened a staff retreat to outline priorities for his three-year administration. He unveiled the key topics that the Center needs to stress within the workings of each initiative. Intense discussions among the advisory board and staff began on each area of interest. Brief summaries of ideas and potential activities were prepared and continue to be the focus of deliberations by the advisory board and staff.

These topics envision future outcomes for the Center's work:

Agriculture of the Middle—The Agriculture of the Middle project seeks to connect midsize family farmers to markets through the development of branded marketing networks linked to food business through values-based value chains. The outcome of this effort will be thriving midsize farms providing sustainably-based foods to consumers who want to know how and where their food is produced.

Bioeconomy—We see a productive and diverse landscape for agriculture and its people who value soil, water, and wildlife while producing, using, and conserving energy in creative, profitable, and sustainable ways. We see an agriculture that provides a balance among food and energy needs and that is focused on midsize farms, and farm/multi-farm-scale energy practices and opportunities.

Food and health—All Iowans should have ready access to healthy, nutrient-dense, safe, and affordable food that is produced, processed, and distributed using sustainable principles. Food products would originate from vibrant, community-based local and regional food networks or through sustainably-produced, minimally processed and fairly traded national and global networks where the health, well being, and safety of all workers in the network are assured.

Livestock and diversity—Diverse livestock, forage resources and forage-based farm enterprises are critical for creating the resilient farms and landscapes intended to ensure profitable Iowa farms that will attract young people and generate healthy environmental performance.

Local policy—We see the enhanced capacity of key local leaders to gain the ability and support available to scan, anticipate, prepare and plan to make informed appropriate and sustainable decisions related to the sustainability of their land, community and people.

Soil and water—Maintaining and improving the integrity of the soil-water system that supports and surrounds all the citizens of Iowa will be achieved by utilizing sustainable practices and valuing ecological systems services.

The Leopold Center was the key factor that integrated my biological control program at Iowa State into the concept of sustainable agriculture. Through the issue teams and competitive grants program, I was able to emphasize the ecological aspects of sustainable pest management. The Center played a critical role in broadening the research focus and providing extension experiences for several of my graduate students. This experience has had a direct positive effect on their professional careers. Working with the Leopold Center and Practical Farmers of Iowa gave me a realistic perspective of pest management as one factor within sustainable agriculture. If it weren't for this support, my research program at Iowa State University would not have been centered on sustainable agricultural systems.
 ~ John J. Obrycki (Department of Entomology, Iowa State University, 1985-2003) Current position: Professor and Chair of Entomology, University of Kentucky

Sharing the Burrito Love

Donations come to the Leopold Center from citizens and organizations, but the year's most unusual gift came packaged with a burrito. Chipotle Mexican Grill, a fast casual restaurant chain, produced a 2007 calendar featuring their menu's star item—the bountiful, bodacious burrito—in a variety of colorful poses. And Chipotle's enlightened management designated half the proceeds from the calendar sales to go to the Leopold Center. (The other half went to the Land Institute in Kansas.)

Why did the fast-growing, Denver-based restaurant enterprise choose the Leopold Center for its largesse? Here's how Chipotle described the Center on the calendar: "They look for ways to reward farmers for protecting water resources and land while helping them become profitable by producing high-quality food. With their help, we'll have an even nicer place to live and better ways to grow our food." The Center received nearly \$11,000 from the Chipotle calendar venture.

Chipotle takes great pride in serving "Food With Integrity." This philosophy yields a menu boasting food that is "unprocessed, seasonal, family-farmed, sustainable, nutritious, naturally raised, added hormone free, organic, and artisanal." They serve more naturally raised meat than any other restaurant in the country, push for more sustainable practices in produce farming, and work with dairy suppliers to eliminate the use of added hormones from their operations. Their Food With Integrity manifesto has even influenced the way they view other aspects of their business, from the materials and systems used to design and build their restaurants, to the staffing and training programs.

Iowa's first Chipotle restaurant opened in mid-September in the Old Capitol Town Center in downtown Iowa City. Learn more about Chipotle at www.chipotle.com.



Ron and Maria Rosmann with their sons, Mark (standing) and (kneeling left to right) David and Daniel. Photo by Carrie Branovan, Organic Valley Cooperative.



Rosmann Family receives 2006 Spencer Award

Once again, the Leopold Center was pleased to present the Spencer Award for Sustainable Agriculture to an Iowa farm family with sterling credentials. Ron and Maria Vakulskas Rosmann, along with their three sons, were honored for their significant renewable agricultural achievements in a ceremony at the Iowa Organic Conference on November 20.

The Rosmanns, who operate a diversified 600-acre, Harlan-area farm, can point to a multitude of production and conservation activities that earned the honor for them. Ron helped found Practical Farmers of Iowa and is a former president and board member of the Organic Farming Research Foundation. Maria manages the family's decade-old private label, direct market organic meat operation. The family also sells organic beef and pork to Organic Valley Family Farms.

In addition to their strong commitment to the principles of organic agriculture, the Rosmanns have been active in preserving the state's

agricultural resources. Their contributions have been acknowledged with local and regional soil conservation awards for the use of buffer strips, terraces, windbreaks, rotational grazing, and establishment of wildlife habitat on their property.

The Rosmann sons combine their farming enthusiasm with Iowa State University academics. The eldest, David, worked in the ISU organic agriculture laboratory; Daniel received a degree in agronomy, which he puts to use on the family farm; and Mark is an ISU student majoring in agronomy and history.

The Spencer Award recognizes those who have made a significant contribution toward the stability of Iowa's mainstream family farms. It commemorates the lives and work of Norman A. and Margaretha Geiger Spencer, who farmed near Sioux City for 40 years. The annual award was endowed by the Spencer family in 2002.

I have always had an interest in sustainable agriculture issues. Collaboration, support, and encouragement provided by the Leopold Center and its personnel allowed for the development of these ideas. Leopold Center support led to the development of the Hoop Group, which has had a major national and international impact on evaluation and development of alternative pork production systems. Leopold Center support also allowed for determination of consumer willingness to pay for food products with embedded environmental attributes. ~ James Kliebenstein, Economist, Iowa State University

Grapes and wine prosper in Iowa

The Leopold Center joined in 2005 with ISU, the Iowa Grape and Wine Development Commission, the Iowa Department of Agriculture and Land Stewardship, and the state's grape and wine producers to launch a program that would address research issues, educational needs, and opportunities for the growth of Iowa's grape and wine industry. M.R. Dharmadhikari was hired as Iowa State's first Extension enologist. On September 28, 2006, the creation of the Midwest Grape and Wine Industry Institute was formally approved by the Iowa Board of Regents.

2006

Dharmadhikari organized and facilitated a Wine Filtration Workshop presented by Pall Food and Beverage Corporation at Tassel Ridge Winery (Leighton).

With Paul Domoto, he gave a program at the ISU Armstrong Research Farm for an ISU Extension Viticulture Field Day. Information was presented about harvest parameters and the laboratory procedures for determining sugar/soluble solids.

On August 9, he presented "Preharvest Parameters: What a Winemaker Desires from the Grower" at Park Farm Winery (Durango) focusing on various parts of the harvest contract.

Information was offered to 70 to 80 grape growers and wine makers at an ISU Horticulture Research Station event with Paul Domoto and Mike White. The presentation covered the sampling and testing of grapes for the maturity indices.

"Harvest Parameters" were discussed at White Oak Vineyards (Elkhart) at an ISU Extension event. Key topics included grape berry growth and development, fruit composition at maturity and harvesting and delivery of fruit based on wine styles.

A talk on "Iowa's Grape Industry - Where is it going?" highlighted the Vine and Wine Workshop at Nashua's ISU Northeast Iowa Research Farm on August 26. Northeast Iowa growers were given information on the current status and future potential in grape production and growing cold-tolerant grape varieties.

On September 6, Dharmadhikari took part in a meeting at Des Moines Area Community College (DMACC) about future collaboration on wine instruction opportunities with DMACC and Charles Sturt University in Australia. This institution specializes in distance education in Wine Science and DMACC is interested in working with them.

A Wine Production Short Course was provided to eastern Iowa growers and vintners on December 1 and 2 at Northeast Iowa Community College (Peosta). The workshop laboratory work involved SO₂ analysis by the aeration-oxidation method and the descriptive analysis of wines. The lectures included information on grape composition, harvest parameters, grape delivery and contracts.

I've been fortunate to have worked closely with Leopold Center staff since I started working for Practical Farmers of Iowa in 1991. They've got dedicated and skilled people on board—people who know how to partner for results. And if I were to point to one of the most significant contributions of these friends and colleagues, it would be how these people have helped build linkages between Iowa State University faculty and staff and the kinds of farmers in our organization. The road has been laid well for a great future.

~ Gary Huber, Senior Food Systems Program Staff, Practical Farmers of Iowa





2007

At the February Cold Climate Grape and Wine Conference (Bloomington, Minnesota), Dharmadhikari spoke on the challenges of entering the vineyard and winery business. His pre-conference lecture was part of the Risk Management Grant activity. The program was attended by more than 200 potential grape and wine producers.

He discussed bulk wines and blending as a tool to improve wine quality at a January Iowa Alcohol Beverage Division meeting at Breezy Hills Vineyards (Minden). On February 28, he, DMACC president Rob Denson, and industry representatives discussed the DMACC plans for a teaching winery. DMACC is seeking funds to establish a teaching facility for workforce development. Also in the works with DMACC is a joint proposal to be submitted to the Iowa Farm Bureau Federation to promote Iowa food and wines.

At the Iowa Wine Commission meeting in Des Moines on February 22, he presented a research proposal, "Development of rapid screening method for chemical and aroma analyses of Iowa wines: Trans-resveratrol and aroma enhancing compounds." The proposal was approved and funded for \$15,000. A second proposal for upgrading the position of wine lab technician also was approved and funded for \$32,492.

At a meeting with ISU food scientist Tony Pometto and other researchers on March 29, a research proposal dealing with antibacterial properties of grape seed extract was considered. On April 4, he met with Jacek Koziel to discuss research dealing

with wine flavor. Mike Bevins from IDALS also was present to see the demonstration of gas chromatography and mass spectrophotometry equipment with sniff port and its application in flavor research.

Future ISU classes may have wine connections. Preliminary conversations were held with Cathy Hauck about a wine microbiology class in the food microbiology laboratory and with Stewart Burger about a wine appreciation class in the Department of Food Science.

On June 4 Dharmadhikari met with Iowa Secretary of Agriculture Bill Northey, Ron Mark and Doug Bakker, president of Iowa Wine and Grape Association, about various industry issues and funding. June 29 marked the first Midwest Grape and Wine Industry Institute Advisory Board meeting. The Wine Institute strategic plan was reviewed and various industry issues regarding the need for research, outreach education and workforce development were discussed.

Sebastian Donner was hired as the Wine Laboratory Supervisor. The main activities of the lab will include problem wine diagnosis, wine quality certification for Iowa and neighboring states, grape and wine research and outreach education.

For more information on the ISU work with grapes and wine in Iowa, see www.extension.iastate.edu/Wine/

Long-term Agro-ecological Research (LTAR) marks decade of Leopold Center funding

Ten years ago the Leopold Center began providing support for the research and demonstration arm of the fledgling organic agriculture research program at Iowa State University. Leadership for the program has been in the capable hands of Kathleen Delate of the ISU agronomy and horticulture departments and Cynthia Cambardella of the USDA-ARS National Soil Tilth Laboratory in Ames.

From its early modest beginnings comparing organic and conventional crop rotations, the program has grown to add studies of organic varieties of field crops, vegetables and fruits. Delate reports that the 2006 field season yielded excellent overall organic experiment performances, despite the drought-like conditions in June and July. Leopold Center funding was leveraged to obtain additional monies from USDA-Sustainable Agriculture Research and Education, the Rodale Institute, and industry groups. Six ISU students (four undergraduates and two graduates) were funded by the program in 2006-07.

Experiments supported by the Leopold Center in 2006-07 and their locations:

At ISU's Neely-Kinyon Farm, Greenfield

- > Comparison of Organic and Conventional Crops, Long-Term Agro-ecological Research Site
- > Organic Flax Production (with Spectrum Organics)
- > Disease Management of Organic Grapes
- > Management of Soybean Staining Disease in Organic Soybeans
- > Insect Pest Management in Organic Sweet Corn
- > Organic Soybean Variety Trial
- > Organic Soybean Rust Management
- > No-Till Organic Crops

At the USDA-Plant Introduction Station, Ames

- > Alternative Herb Crops

At ISU's Southeast Research Farm, Crawfordsville

- > Organic Corn Variety Trial



Photo credits for LTAR photos:
Courtesy Kathleen Delate



Scientific conclusions

Robust corn, soybean rotation yields

Organic corn yields over all rotations averaged 178 bu/acre and organic soybean yields averaged 43 bu/acre. The conventional C-S corn yields at 177 bu/acre were statistically equivalent to the organic corn-soybean-oat/alfalfa-alfalfa (C-S-O/A-A) corn yields at 188 bu/acre and the corn-soybean-oat/alfalfa (C-S-O/A) corn yield at 167 bu/acre. The organic C-S-O/A soybean yields at 45 bu/acre tended to be greater than the other rotations, but there was no significant difference between this rotation, the other organic rotations and the conventional C-S yield of 43 bu/acre.

Small grains yields

There were no significant yield differences between organic oat rotations, averaging 116 bu/acre of grain and 0.92 tons/acre of oat straw. Organic wheat yielded 61 bu/acre and 1.23 tons/acre straw.

Weed populations were low in corn and soybean plots throughout the season, and few significant differences were observed among rotations for grasses and broadleaves. Late-spring nitrate levels in the C-S-O/A-A and C-S-O/A averaged 25.9 ppm $\text{NO}_3\text{-N}$, which is considered adequate, compared with significantly greater levels at 39.9 ppm in the conventional plots. Corn stalk nitrate levels at the end of the season were greater in the C-S-O/A-A rotation compared to the

other two rotations, though the difference was not significant. This rotation appeared to maintain adequate N levels throughout the season while the C-S-O/A and C-S rotations were lower than expected, based on late-spring N levels.

Indications of higher oil content

Soybean protein and carbohydrate levels were equivalent among rotations, but oil content was greater in the C-S-O/A rotation. Higher protein levels in corn (8.5 percent) were found in the two organic rotations. Wheat protein averaged 11.6 percent.

Pest pressure

Pest populations were greater in 2006 than in 2005, with up to 25 percent of corn ears exhibiting corn borer damage on July 5. Because of the high variability, however, there were no differences in damage levels among rotations. Bean leaf beetle numbers also were greater than in 2005, with populations reaching 15 beetles per 20 sweeps on July 20, 110 beetles per 20 sweeps on August 3, and up to 123 beetles in 20 sweeps on September 7. Beneficial insects were generally higher in the organic rotations although results were not significantly different. Soybean seed staining also was greater in 2006 than in previous years, with up to 8.4 percent of soybeans stained, despite no significant differences among rotations. Soybean cyst nematodes were low, with no significant differences among treatments.

I'm an ecologist, but growing up in Iowa and as part owner of the small southern Iowa farm where my mother was raised, I have become increasingly interested in agriculture. Without funding from the Leopold Center, I would not have found a way to connect my interest in forest ecology to how woodlands function in an agricultural context. My colleagues and I are learning that shade-tolerant perennial herbaceous species store a lot of nutrients. We are hopeful that use of these plants in buffers and other woodlands will increase the overall functional capacity of these areas to store nutrients, and will become one piece of the whole puzzle that is solving water pollution problems in Iowa and the Midwest.

~ Cathy Mabry McMullen, Adjunct Assistant Professor of Natural Resource Ecology and Management, Iowa State University

Because of the greater potential for natural biological control in systems with limited pesticide applications and diverse biota, beneficial insects, such as parasitic wasps and predacious lady beetles, and competitive soil microorganisms, should increase in organic sites.

Nutrient supplies

Over the long term, soil organic C and N levels have been shown to be consistently higher in the organic system, where forage legumes and small grains are rotated with corn and soybean. A soil-building cover crop or legume-grass mixture, such as the alfalfa-oat or wheat-red clover mixtures in this experiment, is required in certified organic production. Soil fertility in organic production systems is controlled by organic amendments, such as the composted swine manure used in this study, and the inclusion of forage legumes and other green manures in extended crop rotations. Nitrogen fertility is maintained through the synchronization across space and time of net N mineralization from soil organic N pools and plant uptake of inorganic N. This process depends on the constant renewal of biologically-available N to soil organic N pools. Research indicates that extended organic rotations containing forage legumes have the potential to at least maintain carbon and nitrogen pools, despite the relatively high tillage intensity.



Operating costs

Lower costs of production from reduced fertilizers and pesticides may be countered by increased machinery fossil fuel use in the organic system, but in the economic analysis, returns for corn and soybean in the organic corn-soybean-oat/alfalfa (C-S-O/A) and corn-soybean-oat/alfalfa-alfalfa (C-S-O/A-A) rotations were significantly greater than conventional C-S rotation returns. These results indicate that organic grain crops can be produced successfully in Iowa and additional economic benefits can be derived from expanded crop rotations.

Flax stumbles somewhat

Organic flax, however, proved to be not as reliable an organic grain crop as corn, soybean, oats and wheat. In the three years of organic flax production at the Neely-Kinyon Farm, yields ranged from 16 bu/acre in 2004 to 26 bu/acre in 2005, and 14 bu/acre in 2006. Compost applications significantly increased yields by an average of 5.0 bu/acre, while the underseeding of red clover did not. Red clover, however, was associated with decreased grass weed populations and produced significant biomass after the flax harvest. It serves as a soil-building crop in the rotation, one of the requirements for certified organic production. Lower yields in 2006 may be associated with the following factors: drought-like conditions during boll filling and rains during the period the flax was in windrows. In the northern part of the state where rains were adequate, yields of 30 bu/acre were achieved. Organic flax was sold for \$0.32/lb in 2006, with net returns in high yield areas reported at \$419/acre, significantly greater than conventional prices.



Photo credits for LTAR photos:
Courtesy Kathleen Delate

Outreach and information transfer

- > Presented organic research results to 1,333 participants through 18 research and extension presentations in Iowa and other states/ countries
- > Presented research results at four field days at research station and on-farm sites, addressing organic grain, hay, and vegetable crops research, to a total audience of 373 producers and agricultural professionals
- > Research and extension results from the Organic Agriculture Program were presented as an invited talk at the American Society for Horticultural Sciences Annual Conference in New Orleans, Louisiana
- > Co-organized and presented an intensive workshop with the Midwest Organic and Sustainable Educational Services (MOSES) for farmers, Extension, and Natural Resources Conservation Service (NRCS) on "Transitioning to Organic Agriculture" for 38 participants in Cherokee, Iowa, targeting key instructors who could then train others in their area
- > Responded to more than 200 phone calls and e-mails from producers and agricultural professionals related to questions on sustainable/organic agriculture practices and certification
- > Assumed leadership in two new multi-state research and extension projects: "Organic Management of Soybean Rust" and "Organic No-Till Plus for Weed Management on Organic Farms"
- > Extended research results to producers, agricultural professionals and consumers through publication of 10 research reports on the USDA-Organic Agriculture Consortium (OAC) national OrganicAgInfo web page and distribution of more than 500 copies of the Organic Agriculture Series Extension publications
- > Organized and held the Sixth Iowa Organic Conference in November, focusing on organic markets, which included coordination of 35 speakers; and location and assistance with preparation of an all-organic meal for 323 participants
- > Assisted with the development of the Iowa Organic Association to serve as an official Advisory Committee to inform the ISU research and extension program
- > Continued development of the ISU Organic Agriculture web site at <http://extension.agron.iastate.edu/organicag/>

Leopold Center supports Practical Farmers of Iowa research and field days



One of the most successful partnerships embarked upon by the Center has been its eight-year affiliation with Practical Farmers of Iowa (PFI). Funds from the Center help PFI conduct a vigorous statewide program of on-farm research and educational events, many in conjunction with Iowa State University Extension. From July 2006 through June 2007, PFI hosted 25 field days and summer workshops attended by 1,300 people. Leopold Center support also helped provide for several workshops at the January 2007 PFI annual conference, among them “Growing High Quality Forage: Risk Management in Volatile Weather.”

Rick Exner, ISU Extension/PFI Farming Systems Coordinator, says, “Iowans are people with a lot of ideas, and PFI has always worked to help Iowa farmers develop, evaluate, and share their ideas. More often than not, these inspirations are one-of-a-kind or preceding any established research program. That is where Leopold Center support has been so important, because the Center provides PFI the flexibility to move quickly as new ideas and priorities emerge. In the last year, the Center has helped fill out our understanding on some issues and has helped a whole new crop of ideas reach the public.”

Many of those new ideas have been developed through the ISU On-Farm Research and Demonstration Program, a two-year-old effort to encourage collaborative research by teams of Iowa producers and ISU faculty, students, or staff. PFI has helped unite a number of these teams and with Leopold Center backing has integrated at least six into the PFI on-farm research network. The projects range from farm-designed field equipment to high tunnels to agroforestry to using goats for weed control.

Some PFI efforts that benefited from Leopold Center funding:

Three vegetable producers joined with ISU horticulture professor Henry Taber to evaluate a two-level, organically-acceptable approach to suppressing the cucumber beetle and other pests in winter squash. In connection with this project and with Center support, PFI field days took place on the farms of Susan Jutz (Solon), Laura Krouse (Mt. Vernon), and at The Homestead (Runnells), a nonprofit organization that offers autistic young people and adults campus- and community-based environments. The field day at The Homestead was an example of the many dimensions that come to light from a farm visit. In addition to viewing the squash research, field day participants learned about the philosophy and services that The Homestead provides the community, and they walked through an organic apple orchard that had been established with Center help.





Glen Drowns (r) showed the "two finger" method to determine if a hen is actively laying.



All the box elder, hackberry, cherry and other woods from the Gossman farm are direct-marketed via the Internet.



Sally Worley of The Homestead handed around cucumber beetles and squash bug eggs as Henry Taber (r) described the research project.

Photo credits for PFI photos:
Courtesy Rick Exner

Another rewarding field day was the June 2007 event hosted by northeast Iowa tree farmers David and Susan Gossman (Zwingle). The event highlighted their ISU On-Farm Research and Demonstration project to evaluate soil carbon under different kinds of management. During the field day, participants also learned about the last 150 years of history on the farm as read through its trees, and they watched Dave Gossman slice box elder wood that is prized by cabinet makers.

Leopold Center support has helped PFI poultry farmers consider the possible impacts of avian influenza, as noted in last year's annual report. In December 2006, three PFI poultry producers met with State Veterinarian David Schmitt to discuss how state and federal response plans would be carried out in regard to small and sustainable farmers. One of these producers, Sondra Feldstein (Bondurant), hosted a comprehensive poultry field day in July 2007 that featured talks by ISU Extension Veterinarian and Diagnostician Dr. Darrell Trampel on avian influenza, heritage breeds expert Glen Drowns from the Sandhill Preservation Center, and a poultry processing demonstration by farmers Robert Bahrenfuse and Suzanne Castello.

Ongoing research on non-toxic seed treatments continues at the Neely-Kinyon Research Farm (Greenfield) in collaboration with ISU horticulture associate professor Kathleen Delate. Results there have been variable, which shows the value of continuing a trial over several years. The Center's support for this research has led PFI and ISU assistant professor of seed science Susana Goggi to secure support from the Environmental Protection Agency to evaluate seed treatments based on essential oils. Development continues on other longstanding research subjects originated through farmer-initiated trials.

Two cooperators in 2006 concluded through trials that good weed management practices don't make sense when there aren't any weeds. Ron and Dottie Dunphy (Creston) found no advantage to flame weeding in a year when simple rotary hoeing was effective. (Michigan State University supported the trial, while the Center supported the Dunphy field day.) Doug Alert and Margaret Smith (Hampton) have perfected growing a cover crop of rye in the row before ridge-till soybeans, but the 2006 trial convinced them to limit the practice to fields where weeds are likely to be a problem.

For more information on PFI, see www.practicalfarmers.org/

During my years at the USDA-ARS National Soil Tillage Laboratory and ISU, the Leopold Center was an important component of my research program. It provided a venue for exchange of ideas and information on sustainable agriculture in Iowa and around the country. Funding from the Center also aided my research program in weed ecology and management. I continue to follow the program of the Leopold Center and am impressed with its continuing leadership role in sustainable agriculture. ~ Douglas D. Buhler, Associate Director, Michigan Agricultural Experiment Station and Associate Dean for Research, College of Agriculture and Natural Resources, Michigan State University

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Agricultural Systems Initiative tackles bioenergy and biofuels issues

The ISU College of Agriculture and Life Sciences established a new research and extension initiative in 2004, "Agricultural Systems - Management and Performance." The Initiative is an interdisciplinary, science-based research program that focuses on spatial and temporal variability and interactions between field and watershed components while seeking profitable solutions to future problems in Iowa. The idea for this initiative emerged from discussions college administrators held with Iowa State University scientists and administrators about current research involving agricultural system integration. The Leopold Center contributes \$25,000 per year to the program operations and Jerry DeWitt and Fred Kirschenmann serve as advisors.

The Agricultural Systems Initiative's approach to manage Iowa's land resource is to recognize the spatial variability that exists in the landscape and maximize use efficiency of different ecosystems. Ultimately it should generate additional tools that will help farmers improve production efficiency and gain more from Iowa's resources, according to program coordinator Richard Cruse.

The Agricultural Systems Initiative has supported research projects that focused on improving soil and water resources and associated landscapes through designing systems that make better use of ecological relationships to improve economic and/or resource use efficiencies. Two research projects studied watersheds to determine how their characteristics and design impact water quality and a third project was funded to study the potential of growing alternative crops in the state of Iowa. As of mid-2007, there is one peer review publication in print, several others in preparation, and one master's and two doctorate students have graduated after working with research projects addressing agricultural systems-related issues.

In addition to coordinating and funding research, the Agricultural Systems Initiative organized and hosted a poster and a grant-writing symposium for team-building purposes. It worked closely with the ISU's Biorenewables Program and national funding agencies such as the Environmental Protection Agency (EPA) and the U.S. Department of Agriculture. The Initiative also coordinated efforts with the National Council for Science and the Environment to address concerns in the agricultural systems and bioeconomy area. As a result, the Initiative was invited to develop a breakout session and a set of policy recommendations for the National Council for Science and the Environment on Agriculture and Bioenergy: Achieving Sustainability. In mid-2007 a \$100,000 EPA cooperative agreement was signed between ISU and the EPA Region VII office to address bioenergy impacts on ecosystems services in the Midwest.





Outreach activities under Initiative auspices in FY2007

2006

Richard Cruse and Krisztina Eleki presented a research poster on crop rotation, nutrient management and biomass removal effects on soil organic matter content at the World Congress of Soil Science in July. Carol Williams presented an oral paper at the October Association of American Geographers joint annual meeting of the Great Plains-Rocky Mountain and the West Lakes Divisions. Also in October, Cruse gave a presentation at the University of Wisconsin on soil and water sustainability issues associated with ethanol production.

November events: Richard Cruse spoke at the Green Chemistry and Midwest Policy on Biofuels Briefings, McKnight Foundation, on the opportunity and jeopardy of biofuels: Water. Mario Perez-Bidegain, Matt Helmers, and Richard Cruse presented a research poster and Carol Williams presented an oral paper at the ASA-CSSA-SSSA annual meeting. Cruse gave a presentation in December, "Challenges and Opportunities Surrounding a New Bioeconomy," for the Congressional House Caucus.

2007

January saw two Iowa presentations by Cruse: "Tillage effect on root growth and fertilizer placement" at the Crop Protection Conference and "Bioenergy Implications on Soil and Water Resources" at the Iowa Watersheds Annual Conference.

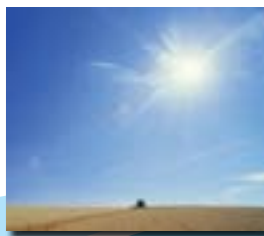
Cruse made five presentations in March on "Bioenergy Implications on Soil and Water Resources" at the Ethanol, Conservation, and No-till Extension meeting, Governor's Watershed Quality Task Force meeting, Pocahontas Soil and Water Conservation District meeting, Cerro Gordo Soil and Water Conservation District meeting, and Fayette County Soil and Water Conservation District meeting.

Other speeches included April presentations by Cruse on "Challenges with Bioenergy Clusters in the U.S." at the International Trade Fair and Congress for Renewable Energy and by Carol Williams at the Association of American Geographers annual meeting. In May, Matt Helmers and other researchers presented a research paper at the Ecosummit in China.

For more information on the work of the Agricultural Systems Initiative, see www.agron.iastate.edu/centers/agssystem/ABOUT.htm

The Leopold Center, in addition to supporting the work of strengthening Iowa's local food economy, has been a key source of inspiration and learning for me. Because of my collaboration with the Center, I am well connected to a network of people who are at the cutting edge of creating enduring change for Iowa agriculture. Revitalizing a regional food infrastructure, with all its cultural, economic and political complexities, is no easy task, but the Leopold Center has taken on this challenge as one aspect of its important work. ~ Kamyar Enshajanian, Program Manager, Center for Energy and Environmental Education, University of Northern Iowa





Iowa Learning Farm Coordinator Jerry DeWitt talks with attendees at an ILF field day on the Jerry Crew farm in Clay County. Crew is a farmer cooperator with the Iowa Learning Farm project.

DeWitt directs Iowa Learning Farm project

Beginning in October 2006, Jerry DeWitt assumed coordination responsibility for a five-year, multi-partner project that aims to share the best workable ideas about farming and environmentally responsible, financially successful agricultural production practices. The Iowa Learning Farm (ILF) project, based on information from the trials that began in 2005 on 29 demonstration farms across Iowa, will serve as a model for discovering and exchanging ideas among farmers, government agencies, scientists, agribusinesses and the general public. Its goals are a good fit with the Leopold Center mission to promote sustainability in Iowa's farm communities.

Working closely with the cooperating producers, the ILF staff hopes to alleviate resource problems by using conservation planning processes to implement systems that improve soil and water quality. The trials compare and document the advantages of these systems already in place on the cooperating farms, which are considered to be leaders in their regions. The findings will be used to encourage other farmers to consider planning for their own operations.

Working in the shade of the Leopold Center has enabled my academic passion (sustainable livestock production, especially pigs) to have voice, structure and credibility. The issue teams, working groups and initiatives, particularly the Hoop Group, created settings for collaboration that multiplied our work and created long-lasting relationships. For me, the Leopold Center served as a practical, intellectual incubator where agricultural alternatives flourished. ~ Mark Honeyman, Coordinator, ISU Research and Demonstration Farms, and Professor of Animal Science, Iowa State University



Iowa Learning Farm cooperator Joel Zwiefel (in root pit) discusses the quality of his soil after six years of no-till continuous corn during an ILF field day on his farm in Palo Alto County.



ISU Extension Water Quality Engineer Matt Helmers demonstrates the conservation systems rainfall simulator at the Iowa Children's Water Festival in Ankeny, Iowa. Helmers is part of the Iowa Learning Farm team, investigating water quality, sediment and nutrient transport from farm lands.



ISU Extension Education Director Gene Mohling and an attendee search for soybean aphids at a field day held on the Rob Stout farm. Stout is a Washington County cooperator for the Iowa Learning Farm.



ISU Extension Water Quality Engineer Matt Helmers demonstrates the rainfall simulator at an ILF field day held at the Smeltzer Trust Demonstration Farm in Webster County.

Conservation systems tactics being tested within the ILF producer network include several management practices that improve water quality, soil quality and wildlife habitat. The increased use of a variety of conservation systems, such as no-tillage, ridge-tillage, strip-tillage, and other residue management systems, along with different cropping systems and nutrient management offers a comprehensive approach to helping farmers prepare and qualify for the federal Conservation Security Program (CSP).

One of DeWitt's first steps in his ILF tenure was hiring five new staff members, primarily to oversee the field operations, data collection, and communications. The challenge for the ILF staff is to demonstrate and promote conservation management systems with an emphasis on conservation tillage, cropping systems, and nutrient management across Iowa, while tailoring educational activities to support state and federal soil conservation and water quality programs. DeWitt relies on a project core administration team from four ISU departments: Agronomy, Agricultural and Biosystems Engineering, Economics and Sociology.

The Iowa Learning Farm operates with additional guidance from these partner organizations: Iowa Department of Agriculture and Land Stewardship, Division of Soil Conservation; Iowa Department of Natural Resources; Iowa State University Extension; Natural Resources Conservation Service; Conservation Districts of Iowa; and the Iowa Farm Bureau Federation. For more information, see the ILF website at www.extension.iastate.edu/ilf/

ILF Mission Statement

The Iowa Learning Farm promotes efficient agriculture production systems that result in agronomic, economic, and environmental improvements through increased awareness and adoption of conservation systems and ethics.

Center backs sustainable agriculture graduate students

The Leopold Center provides financial support for several students enrolled in the ISU Graduate Program in Sustainable Agriculture (GPSA). More information on the GPSA is found at <http://www.sust.ag.iastate.edu/gpsa/>

In their own words, three students describe how they benefited from Center funding in FY2007. Each student had a research assistantship monitored by ISU faculty members affiliated with the GPSA.

Amber Anderson, M.S.

Home Department: Agronomy

Advisors: Cornelia Flora and Andrew Manu

As a graduate student in Sustainable Agriculture, the Leopold Center fellowship has been helpful in expanding my experience outside of Agronomy.

Research activities: I have been working on a project involving soil quality and farmers. I became more interested in this topic while traveling to farms in Sustainable Agriculture 509. Many of the farmers gave very interesting and contrasting responses. I wondered if there was a soil quality difference to go with those differing ideals. Over the past year I have designed a study with the help of Dr. Manu and Dr. Cornelia Flora to look at this issue and also work with farmers. More recently, I have sampled these farmers' fields and begun to process the soil to obtain soil quality measurements.

Here are some of the other tasks completed while on this fellowship:

- > Compiling, categorizing, and analyzing responses given at Entrepreneurial listening sessions around the Midwest,
- > Research on all other midwestern colleges and universities to determine which institutions offer sustainable agriculture classes or include elements of sustainability in their traditional agriculture classes especially for agriculture education programs,
- > Literature reviews on food systems. This was most helpful because it gave me a chance to come in contact with many good sources of information of which I was not aware,
- > Work on soil quality data for American Society of Agronomy presentations to be given at the coming year's meetings, and
- > I taught two sections of the introductory soils class during both the fall and spring semesters.



From a personal viewpoint, the Leopold Center has allowed me to focus my research and Extension work on the values that are important to me. In particular, the Center has given me the opportunity to spend time on the three legs of sustainability (farm profitability, environmental stewardship, and community vitality). With the information and experiences gained, I can help others understand that farming can be both profitable and environmentally sustainable and that community leaders need to focus on rural entrepreneurs as much as Main Street businesses. A focus on anything less than the three legs is in the best case incomplete, and in the worst case extremely misleading. It is my hope that the research and outreach activities that are such a vital part of the Leopold Center continue because I believe that the general public is really ready to listen. ~ Craig A. Chase, ISU Extension Farm and Ag Business Management Field Specialist, Tripoli, Iowa



Amber Anderson, M.S.



Elisa Regen, Ph.D.



Edgard A. Tellez-Morales, M.S.

Elisa Regen, Ph.D.

Home Department: Sociology

Advisor: Lois Wright Morton

Since arriving at Iowa State University in January 2007 to begin my Ph.D. program in sustainable agriculture, I have been attending classes full-time and working on my graduate research.

My current project with the Leopold Center support involves developing a landowner and community leader survey to try to gain a better understanding of regional attitudes, knowledge, and behavior in regard to fire and grazing as management practices on grasslands. It is hoped that this data can be used to promote more sustainable grassland management practices on Iowa grasslands and oak savannas.

I have been developing a survey instrument with validated survey questions from previous studies in the literature, and have repeatedly revised the draft as I have received feedback from other university researchers, natural resource agency personnel, and others involved in grassland/prairie issues. I will be interviewing local fire department and public safety personnel in our study area to document their perceptions of prescribed burning as a land management tool. We also will be conducting a pilot test of the survey, which will be followed by final revisions before printing and mailing the survey to all of the landowners and community leaders

in the study area. We will then begin collecting and analyzing our data before starting the second phase of our research project.

Thank you for the opportunity to study and conduct research at Iowa State University. I truly appreciate your support as I pursue advanced studies in sustainable agriculture.

Edgard A. Tellez-Morales, M.S.

Home Department: Natural Resource

Ecology and Management

Advisor: Heidi Asbjornsen

Research topic: Community-based water quality and quantity monitoring and watershed management. Location: Communities in the Cofre de Perote National Park's buffer zone, Veracruz State, Mexico, Pixquiac River Watershed.

Agriculture is known for being one of the main nonpoint sources of water pollution problems in the United States and in developing countries. Tropical areas are currently facing the contradiction between the goal of increased food production and excessive use of natural resources. As a result, changes in land use due to the conversion of forest to pasture and cropland have been associated with the process that reduces availability and quality of water.





In Mexico's state of Veracruz, México cloud forests, along with many other tropical regions in the world, have undergone high rates of deforestation during the past several decades. Therefore, as a GPSA student I started to work with rural and urban communities in the state of Veracruz on a research project that could describe how involvement in water quality and quantity monitoring programs can help communities to understand the impact of agricultural systems in a broader context such as watersheds.

Iowa State University, in addition to its work in eco-hydrology, has introduced a social focus to the current research around watershed management in the area. Through its Department of Natural Resource Ecology and Management (NREM), ISU contacted Global Water Watch (GWW), which is coordinated by Auburn University. GWW has spent much of the last 15 years promoting the use of water-monitoring techniques.

In September 2005, before becoming an ISU student, I attended a GWW training session on how to use low-tech methodologies for water quality monitoring. Twenty-five people from different parts of Mexico were trained in the techniques used by GWW. The workshop focused on presenting and discussing the potential of applying these techniques in the area given the importance of water, as well as opportunities to hear from possible monitoring groups interested in using the techniques in their communities. As a result of this workshop, seven people,

among them researchers, graduate students and NGO personnel, decided to start promoting the techniques in the area.

A second workshop was organized in March 2006, where I took part as a trainer for new monitors. This time 16 new monitors were trained, the majority originating from the central region of Veracruz. This initiative eventually led to another workshop for new monitors in March 2007 and 16 new monitors were trained, the majority from the River Pixquiac watershed itself.

There are already four community groups of approximately 10 persons each monitoring the quality and quantity of the river. I have chosen two of the 10 parameters of water quality collected by the communities to be used collectively in the identification process of trends on the watershed land use. Bacteria (*E.coli*) and total suspended solids (TSS) will be the parameters studied because they are the most often linked to agricultural activities and are easy for the monitors to interpret. At the same time, participants in monitoring sessions have been surveyed and interviewed following the Community Capitals Framework methodology developed by the North Central Regional Center for Rural Development at Iowa State University.

This project has applied an integrated social-ecological assessment of the effectiveness of the community-based monitoring program in enabling local groups to achieve their goals related to negotiation and implementation of management initiatives.

Marketing and Food Systems Initiative

Activities underway

2006

During the past year, the Leopold Center for Sustainable Agriculture and the Iowa Community Vitality Center have partnered with the Iowa Bankers Association, Iowa Area Development Group, community development financial institutions, economic development organizations, and representatives from several technical assistance providers across Iowa to organize a project that would (1) identify any gaps in entrepreneurial capital and development assistance in rural Iowa, (2) examine models used to address gaps in other states, and (3) develop strategies and business plans for addressing the gaps. This project, called the Community Development Financial Institution Initiative, is an outgrowth from seminars from two ShoreBank affiliate presidents sponsored by the Leopold Center in June 2006. The project was invited by the Iowa Capital Investment Corporation (ICIC) to develop a plan to employ \$5 million in state tax credits (to be used as loan guarantees) for micro loans in rural Iowa.

A second annual Marketing and Food Systems Workshop attracted 190 people on November 6. More than 30 presentations that day reported on grants of the initiative and Value Chain Partnership projects. Abstracts from the presentations can be found at www.leopold.iastate.edu/research/marketing_files/workshop06/index.htm.

2007

A February 28 meeting explained "Local Foods Purchases by ISU Dining" to farmers, processors, and local food groups. The event was sponsored by the Leopold Center, ISU Dining, Practical Farmers of Iowa, Iowa Network for Community Agriculture, and Iowa Farmers Union. An ISU Dining local food procurement follow-up meeting occurred April 11. A pilot project (\$4,000 Leopold Center grant) with ISU Dining hired a graduate student to assist the ISU Dining Director in buying more local food.

Other initiative ventures:

- > Sponsored participation of several Iowa farmers in the January 10 Whole Foods vendor fair in Omaha, Nebraska.
- > More than 40 people attended a January 13 food distribution workshop co-sponsored with PFI as part of their annual conference.
- > Helped judge an ISU College of Design special projects class in designing sustainable food systems.
- > Twenty stakeholders participated in a Marketing and Food Systems Initiative Forum May 14 to consider opportunities/challenges and linkages between it and other Center initiatives.
- > Co-sponsored events at the Sustainable Agriculture and Food Systems Funders Conference in Des Moines June 24 to 28. The Center became a member of the Sustainable Agriculture and Food Systems Funders national group.

*Leopold Center support of my prairie pastures project with farmers Mike Nading, Matt Stewart, Tom Frantzen and Dan Specht in 1994-1997 has been very influential in my subsequent research and writing on sustainable agriculture. It was particularly influential in the development and writing of *The Farm as Natural Habitat: Reconnecting Food Systems with Ecosystems*, co-edited with Dana Jackson and published in 2002. The partnerships formed with these farmers and their families have continued to inform me over ten years later. Since 2003 I have served on the advisory board of the Leopold Center. Attendance at meetings and other LSCA events has deepened my understanding of sustainable agricultural issues across the state and around the country. Currently I am interested in the relationship between farm policy, the industrial food system, farmer choices, and the functioning of the agricultural ecosystems of the Upper Midwest. ~ Laura Jackson, Professor of Biology, University of Northern Iowa*

The FY2007 Special Call for Dairy Options Proposals was part of the Center's annual request for proposals process. The administration of the three special projects eventually funded is being coordinated by the Marketing Initiative.

Value Chain Partnerships for a Sustainable Agriculture (VCPSA)

- > Funding for a new, three-year \$500,000 grant from the Wallace-Kellogg funding partnership (Market-based Change Initiative) began September 1.
- > Recruited VCPSA advisory group (two members each from ISU, Leopold Center Advisory Board, and PFI membership) and held first meeting April 12.
- > Recruited candidates for MBA program with a minor in sustainable agriculture or the Master's in Sustainable Agriculture with a minor in business.
- > Recruited and hired Corry Bregendahl of the North Central Regional Center for Rural Development to conduct qualitative evaluation of VCPSA with focus on PNMWG and RFSWG.
- > Developed process to assess working group performance for use in allocating resources.
- > Hired two graduate students to assist with VCPSA activities; both are MBA students with minors in sustainable agriculture.

Pork Niche Market Working Group (PNMWG)

Work continued on the two-year, \$400,000 NRI-USDA grant, "Niche Market Herd Health and Cost Management Project," with the Iowa Pork Industry Center, ISU College of Veterinary Medicine, Leopold Center, ISU Animal Science Department, Niman Ranch, Eden Farms, Organic Valley, and others. More than 90 farmers (75 in the Midwest and 15 in North Carolina) are participating, with 25 involved in the intensive diagnostics phase.

PNMWG is seeking ways to help farmer-led niche pork companies work together to maintain their competitive advantages over larger integrators entering the niche pork market, with a study to be completed in fall 2007. At the September meeting it was reported that PNMWG has generated more than \$1,130,000 in project and coordination funds since its inception in 2001. Leopold Center contributions to PNMWG projects for this period (through competitive grants and Marketing Initiative funds) were \$110,000, so the Center's funds have been leveraged ten-fold by PNMWG.

Eight new projects were launched by PNMWG in 2007 including 1) niche pork information dissemination (return of PNMWG newsletter); 2) niche pork producer information packet; 3) maximizing carcass utilization in niche pork companies; 4) niche pork products for ISU Dining; 5) completing a herd health guide; 6) finalizing Niche Pork Production Handbook; 7) creation of cash flow budget and Berkshire decision tool; and 8) a project to educate Iowa farmers about niche pork production (Smithfield-Swine Industry Enhancement Program).

Regional Food Systems Working Group (RFSWG)

More than 25 organizations and businesses from Iowa and Minnesota are involved in these regional foods efforts. Thirteen projects (nearly \$70,000) were funded from 2004 to 2006, including work occurring in three geographic areas of Iowa.

The Northeast Iowa Food and Farming Coalition was selected as a pilot region to receive technical assistance. They were given \$28,000 by the Leopold Center and the Henry A. Wallace Center at Winrock International to conduct several critical studies on market supply and demand, economic impact, and infrastructure, and the group spoke at the Sustainable Agriculture and Food Systems Funders Conference in Des Moines. A key outcome for RFSWG was that support



for the Northeast Iowa Food and Farming Coalition, combined with RFSWG's pioneering work on scenarios showing the link between increased consumption of fruits and vegetables with rural economic development, were instrumental to the coalition being awarded a two-year, \$500,000 planning grant from the W.K. Kellogg Foundation. This initiative integrates health and community-based food systems.

A "Special Call to Develop Vibrant and Sustainable Regional Food Systems" was issued to choose a second pilot region in fall 2006. Southwest Iowa (Cass and surrounding counties) was selected to receive \$20,000 in financial and technical assistance from RFSWG and southeast Iowa (Jefferson and surrounding counties) to receive \$7,300 in matching funds for a planning grant to conduct area food assessments. The Southwest Iowa Cultivators group (Cass and surrounding counties), which received \$20,000 from RFSWG, worked with the Iowa West Foundation to secure \$20,000 in matching funds.

One RFSWG goal was to increase purchases of local food in two Iowa communities.

- > Northeast Iowa, Increase in local food sales and expanded membership by Co-op and Grown Locally, CSA totaling more \$146,736 in gross sales from August 2006 to July 2007.
- > Southwest Iowa, from January 1 to July 31, 2007 saw a total increase in local foods sales from last year, up \$36,748 in the Atlantic area alone.
- > Southeast Iowa, \$1,450 in increased CSA sales

The total gain for these Iowa food enterprises amounted to nearly \$185,000 in local food sales.

Other RFSWG accomplishments:

- > Working with a subcommittee as part of Phase 2 of RFSWG, a new guide was prepared on "Developing a Vibrant and Sustainable Regional Food System."

- > Developed a matrix describing incentives and programs for organic dairy farmers.
- > Provided assistance for Oneota Food Cooperative in northeast Iowa for logo and brand development.
- > Requested \$9,000 in funding from the Alces Foundation to be distributed across all three RFSWG-selected regions to build teamwork and leadership capacity.

Niche Grains (Flax) Working Group

Margaret Smith (ISU Extension) and Ronda Driskill (Practical Farmers of Iowa) were named to lead the Flax Working Group in mid-2006. On-farm research trials were conducted in 2006, along with flax production and marketing tour stops at PFI and ISU field days. A web site was launched at the VCPISA web site: www.valuechains.org/flax

At the Flax Working Group annual meeting November 21, topics included an in-depth review of the 2006 growing season, current research data, introduction of a flax budget model and future direction of flax production in Iowa. Despite adverse weather conditions and low yields, growers and processors remain optimistic about the future of Iowa's flax production. A grower survey was finalized and sent to farmers. Discussions occurred with Spectrum regarding grower contracts. A session on flax growing was presented at the PFI Annual Conference, January 14.

Ronda Driskill left PFI and a new flax proposal was submitted by Mary Wiedenhoef of the ISU Agronomy Department. However, because of the challenges in producing flax, a decision was made to close the Flax Working Group on August 31, 2007.



*1988 Director Dennis Keeney
In his classic Land Ethic, Leopold wrote, "A land ethic changes the role of Homo sapiens from conqueror of the land community to plain member and citizen of it. It implies respect for his fellow-members, and also respect for the community as such." This is our role as well; not just to generate research results, but to encourage wise land use as well. One without the other is hollow.*

BioEconomy Working Group

Representatives from the BioEconomy Working Group, Creative Horizons, the Iowa Business Council and consultant Shel Weinberg met with Hon Industries November 29 to discuss potential use of Iowa-grown kenaf in Hon office products. A study on the economic impact analysis of ethanol facilities and effect of local ownership was released in September by ISU. See it on the VCPSA web site: www.valuechains.org/bewg/Documents/eth_full0706.pdf.

Jill Euken resigned from the group leadership February 28 and leadership was assumed by Margaret Smith, ISU Extension, and Ronda Driskill, Practical Farmers of Iowa. Following Driskill’s departure from PFI and the increase in corn prices, the decision was made to close the BioEconomy Working Group on August 31, 2007.

Initiative leader presentations

2006

- > “Enhancing entrepreneurship and rural development: Role of CDFIs” seminar
- > National SARE Conference, Wisconsin
- > ISU Economic Development open house, Ames
- > Vo-ag instructors, Atlantic
- > ISU Extension video teleconference on “New Opportunities in Agriculture”
- > ISU Food Science and Human Nutrition departmental seminar

2007

- > Social Entrepreneurship class, ISU College of Business
- > Northeast Organic Food Association annual conference, Syracuse, New York (2)

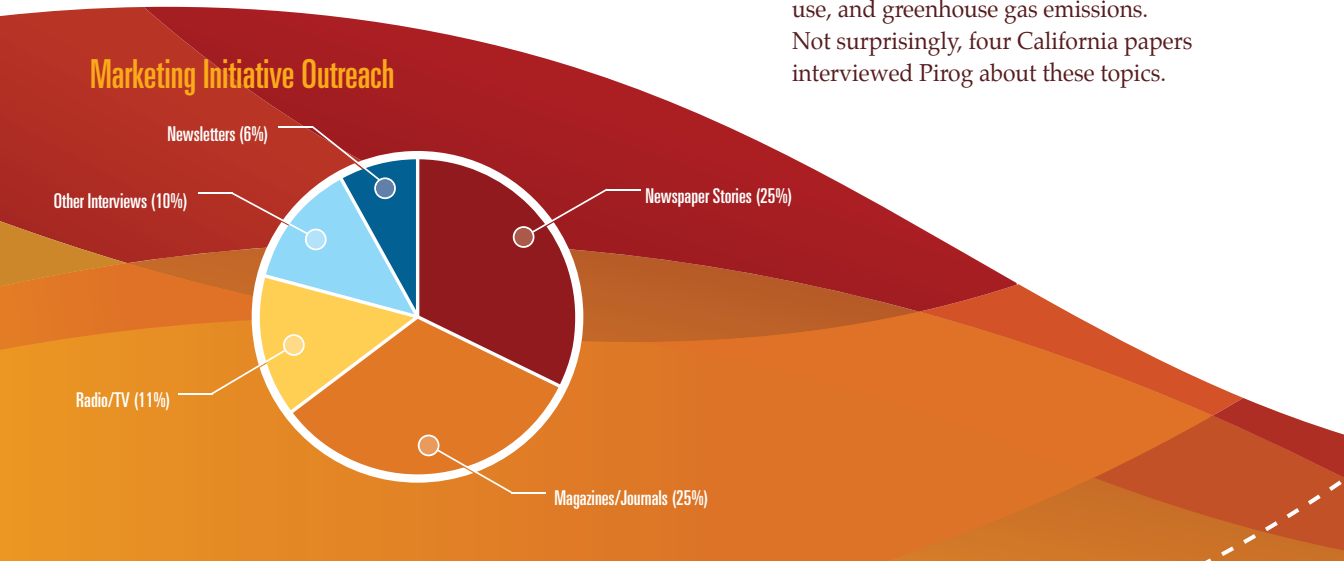
- > Iowa Network for Community Agriculture annual conference, Marshalltown
- > Kansas Sustainable Agriculture conference, Manhattan, Kansas (2)
- > ISU Extension to Agriculture and Natural Resources training
- > University of Iowa sustainability project on economic impacts of local foods
- > Monterey Bay (California) Aquarium Sustainability Institute
- > Northeast Iowa Food and Fitness Initiative, Decorah
- > Iowa Bankers Association, Economic Development Task Force
- > Sustainable Ag and Food Systems Funders Conference, Des Moines

Outreach

The Marketing Initiative has been extremely successful in promoting and capitalizing on its products and accomplishments, both for the initiative’s work and for VCPSA-related activities. Program leader Rich Pirog has given numerous interviews, particularly about local foods and the food miles concept, to U.S. media and also to international journalists.

Newspapers

Five of 25 newspaper stories featuring information from the MFSI appeared in Iowa publications, and the remainder were published in national outlets such as *USA Today*, *Chicago Sun-Times*, *Washington Post*, *San Francisco Chronicle*, and *The Wall Street Journal*. The *Toronto Star* wrote about food miles and eco-labels. In addition to the popular topics of eating locally grown food, rising energy costs spawned considerable press interest in the relationships between miles traveled by food, energy and fuel use, and greenhouse gas emissions. Not surprisingly, four California papers interviewed Pirog about these topics.



Magazines/journals

Scientists, foodies, policy wonks, farmers, consumers, and travelers were just a few of the highly varied magazine readers who learned things from the work of the Marketing Initiative and VCPSA.

- > *Journal of Animal Science*, “Pork Niche Market Phenomenon” co-authored with Mark Honeyman and Pete Lammers (ISU) and Gary Huber (PFI)
- > *Time*, (2) organic and green businesses and follow-up on a story about organic and natural foods
- > *Food Merchandiser*, place-based foods and economic development
- > *Oregonian*, food transport and energy use
- > *The Nation*, facts about agriculture’s global and local economic impact
- > *NYU Science and Health Report*
- > *Successful Farming*, direct-marketing farm products
- > *YES!*, (2) farm efficiencies and farm size and food miles graphic
- > *Journal of Hunger and Environmental Nutrition*, first issue review
- > *Food Service Director*, fact check on local food and institutional buying
- > *Farm Journal*, food miles and local foods at large-scale retail and foodservice operations
- > *New American Media*, use of grapes for grape juice and wine in faith community
- > *Self*, pesticide residues in local and organic foods
- > *GO!* (for children) food miles and CO₂ emissions
- > *AGCO* (Massey Ferguson), lifestyle farming and small farms
- > *Home and Garden*, food miles and CO₂ emission fact-checking
- > *Good Housekeeping*, fact checking about local/organic food and fuel savings
- > *Atlantic Monthly*, Farm Bill and provisions to increase local foods



- > *Discovery*, organic and local foods
- > *Food and Wine*, niche pork
- > *Arkansas Traveler*, food miles and energy use in agriculture
- > *Outside Magazine*, local foods

Radio/TV

National Public Radio aired several stories that mentioned or featured information about MFSI research and demonstrations. The Canadian Broadcast Corporation audience was interested in food miles, energy use in the food system, and climate change, while TV Tokyo interviewers wanted to talk about food systems. Other popular topics on the radio/tv circuit were the natural and organic livestock industry and local foods.

Newsletters

Six newsletter stories appeared with information from Pirog about local foods, VCPSA, food safety and ecological footprints.

Interviews

Pirog was interviewed by several book authors preparing volumes covering food miles, local foods, eco-friendly food lifestyles, and energy use. A North Carolina consultant, who was putting together a multi-media video program on food miles for the North Carolina State Fair, contacted him for information. Noted New York chef Dan Barber came to Pirog for background material to be used in a *New York Times* editorial. The University of Iceland consulted Pirog for research on food miles. At Smith College in Northampton, Massachusetts, *Beyond Green-Sustainable Art* used food miles work and facts in an art installation.

1999-2000 Interim Director Allen Trenkle
Each farm and parcel of land is unique. To be successful, I think some portion of sustainable agriculture research must be shifted to engage the people farming the land with the living community on their farm in order to help them become better stewards of the land.



Ecology Initiative

This past year was dominated by the real-time launch of Iowa as a corn-based ethanol leader. The challenge for the Leopold Center, especially the Ecology Initiative, is to keep an eye on possibilities and potential for the next evolution of the bioeconomy. We can use ecological thinking to encourage innovation, learning and research that will help us transition to the next generation of agricultural systems. Our portfolio of projects covers a wide range of work, from plot to field to watershed, but is characterized generally by demonstration and research for practices that provide multiple benefits, greater diversity, and more living cover on the land. ~ Jeri Neal, Ecology Initiative program leader

Grassland Agriculture program

Now in its third year, the program's long-term goal is to identify and address the barriers to the development of grass-based production systems in Iowa agriculture. This work complements the Green Lands, Blue Waters program, which advocates maintaining continuous living cover on the land. Competitive grants also reflect the initiative's commitment to grassland resources. For example, a grant exploring cool-season legumes and warm-season perennials helped sponsor the Grazing Native Lands conference in Ames, with more than 60 attendees (see p.45).

Work continues on the re-issue of *Grass: The Yearbook of Agriculture 1948*. Managing editor and co-executive editor Walt Wedin has identified nearly 50 authors and co-authors for 18 chapters. Support from the Wallace Genetics Foundation, Inc., the Leopold Center, and USDA special funds has been supplemented by contributions from the Forage and Grassland Council and Intertape Polymer and future funding sources are being explored. Projected publication date is December 2008.

Iowa activities:

- > Participated in Practical Farmers of Iowa field day and annual conference planning, including speaking, securing speakers and hosting a field day on the John Sellers farm.
- > Collaboration at American Forage and Grassland Council annual conference and board meetings. Strategic meetings helped to reorganize and revitalize Iowa Grassland Alliance, bringing it under Iowa Forage and Grassland Council as an Iowa Grazing Lands Conservation Initiative Committee with new funding and support from Natural Resources Conservation Service (NRCS).
- > Provided leadership in planning summer 2007 Iowa grazing meetings, Grazing Days and Custom Grazing events, including participation in a grass-fed beef meeting in Letts and a custom grazing/grass-fed meeting in Calmar.
- > Worked with the Upper Midwest Biomass Working Group (Great Plains Institute) to create the Great Plains Institute-Powering the Plains Regional Energy Roadmap.
- > Interviews: *Des Moines Register* (2), *Iowa Farm Bureau Spokesman* (2), and Iowa Public Radio (2).
- > Presentations at Nebraska Grazing Conference, Iowa Bioeconomy Conference, Iowa Native Lands Conference, and Cow-Calf Conference. Sellers also presented forage and hay land rental rates survey results at extension meetings in Chariton and Bloomfield.

John Sellers, Jr.



Working in the context of Iowa communities, we hope to put more sustainable systems into place—systems that give farmers a better economic return and that make Iowa a better place to live. . . we believe we can take what we have learned over the past 12 years, serve as a catalyst to Iowa farmers, entrepreneurs, and other citizens together in the context of their own communities and develop common approaches to a more sustainable future.

2000-2001 Director Fred Kirschenmann



Working with producers

A \$3,000 producer conference support program was launched to help producers offset the costs of attending educational conferences and training. Seven producers have taken advantage of the program since its inception.

South-central Iowa farmer John Sellers, Jr. of Corydon provides both “in-reach” and “outreach” in grass and grazing between the Leopold Center and other Iowa stakeholders. Sellers’ role includes helping identify research and education needs for Iowa grassland agriculture farmers and he works with several Iowa agency and non-profit committees and programs. He spoke at the Third National Grazing Lands Conservation Initiative Conference in St. Louis, Missouri and testified before the Senate Agriculture Committee in Washington, D.C. Sellers also participated in the Iowa Legislative Day Event, and was part of an Iowa Natural Heritage Foundation advisory group that prepared a Farm Bill position paper on the Conservation Reserve Program (CRP).

ISU graduate student Andrew Heggenstaller does field work and data analysis for the ecology special project on biomass.

LCSA GRASSLAND AGRICULTURE PROGRESS REPORT “REPORTING FROM THE FIELD” BY PROJECT PI JOHN SELLERS, JR.

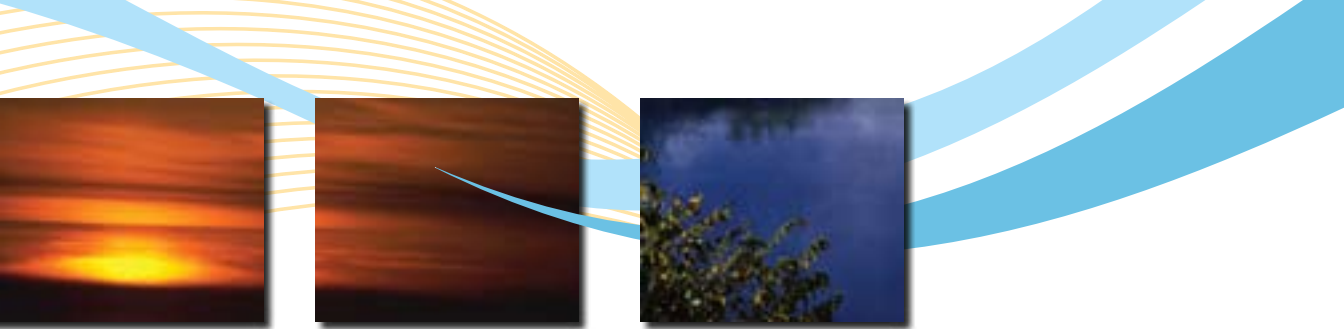
Efforts of the Grassland Agriculture program continue to gain momentum. As a result of our activities, grassland management is becoming a more significant part of watershed protection planning in the state. Joint forage-related activities and programs with major partners such as ISU Extension, Practical Farmers of Iowa, Iowa Forage and Grassland Council, Iowa NRCS and the Iowa Department of Agriculture and Land Stewardship have:

- > attracted increasing numbers of producers to educational outreach events and special conference sessions featuring speakers that challenge and offer new and innovative thinking for Iowa producers,
- > added support and emphasis of grassland management through NRCS EQIP planning and funding, and
- > informed a new program termed Grazing CRP, administered by the Iowa Department of Soil Conservation, which encourages producers with expiring CRP contracts to improve those acres for grazing and haying.

For the past few years, the spotlight has been on the movement to a ‘bioeconomy’. Many had feared a

huge outflow of CRP and grassland acres into row crop production. This has not (yet) been the case. Yes, many CRP contracts are expiring and there are highly erodible acres now going into grain production, but renewals and extensions are much higher than forecasted. Cellulosic ethanol research, residue removal and a growing hypoxic zone in the Gulf of Mexico are stimulating more emphasis on cover crops and their value to the sustainability of our precious land and water resources. This is keeping the ‘bioeconomy’ door open for retention of grasslands.

Attendance at national and regional grazing and grass-finishing conferences allows exposure to cutting edge management and research. It helps the Grassland Agriculture program identify expert speakers, such as Nebraska’s Jim Gerrish, to appear at Iowa events, such as the 2008 PFI Annual Conference. It also facilitates networking of producer grazing and grass-finishing groups and sharing of expertise from individuals who have been successful in other areas of the country. They represent a potential ‘next level’ of grasslands and grazing achievement, and I hope we can facilitate some version of this for Iowa as the next step for the Grassland program.



Green Lands, Blue Waters

Green Lands, Blue Water (GLBW), a consortium of land-grant universities and agricultural, environmental and rural development non-profit organizations, is engaged in a variety of activities to promote water quality and a more diverse landscape.

Science journal article

Ecology program leader Jeri Neal was one of 14 authors from the Green Lands, Blue Waters consortium who authored a call to action in the June 15th edition of the journal *Science*. The research study, led by Nick Jordan, professor in agronomy and plant genetics at the University of Minnesota, was funded by the W.K. Kellogg Foundation and the Coastal Oceans Program of the National Oceanographic and Atmospheric Administration.

In the article, the authors presented a strong case for agricultural policies that focus more on developing and rewarding sustainable, multifunctional landscapes that benefit both varied commodity production and the environment, and less on merely maximizing crop yield.

Federal funding assists GLBW

The Ecology Initiative administers a “special agriculture appropriation,” consisting of federal funding for water quality-related work obtained with the assistance of Senator Tom Harkin (D-IA) and members of his staff on the Senate Agriculture Committee. The grant seeks to develop and demonstrate a new generation of ecologically sound and agriculturally profitable farming alternatives that also address the Midwest contribution to hypoxia. By working through existing institutions and agencies across multiple midwestern states, the overarching goal of the project is to identify and implement

agricultural strategies based on the integration of perennial plants and other continuous living cover into the rural landscape.

To increase the potential impact of the appropriation, dollars are used for both directed research and also for existing innovative watershed and value-added projects that can expand further leveraging. Activities include demonstration, research, technology transfer and outreach. Funds are distributed among ten specific sub-projects supporting the following collaborative and directed work:

- > the Mississippi basin-wide initiative, Green Lands, Blue Waters (GLBW), and assuring appropriate Iowa stakeholder involvement;
- > research and demonstration to develop effective watershed management models that balance conservation and profitability;
- > nutrient management initiatives with Iowa State University and the State of Iowa to research practices and policies that optimize agricultural production on specific landscapes;
- > a grassland agriculture program to address opportunities and constraints to increasing grass and forage-based agriculture in the state; and
- > demonstrating cover crops and investigating perennials for energy and bio-uses.

Expected dates of completion vary by project, but all expect to wrap up their work in one to three years. The individual projects funded through this program provide an important first step toward the overarching goals of the proposal, goals which can be achieved only by a long-term, multimillion dollar effort that is outside the auspices of this program.

Mississippi River Basin Alliance

The Ecology Initiative was one of two partners collaborating with the Mississippi River Basin Alliance to accomplish the work outlined in the W.K. Kellogg-funded proposal, "Developing a Systemic, Basin-Wide Collaborative Framework for Addressing Hypoxia in the Gulf of Mexico." Project milestones included:

- > RIVERMAP (www.rivermap.org), an on-line database and mapping system to coordinate for public access the various efforts taking place in the Mississippi River Basin that address issues related to nutrient management and hypoxia in the Gulf of Mexico,
- > a stakeholder workshop to explore how a common vision for the Mississippi River Basin can help identify strategic points for leveraging and investment, and
- > a white paper on the impact of policy, agriculture and landscape on water quality in the Basin.

Boone River Watershed

This ongoing effort unites the local producers, Iowa Soybean Association, Nature Conservancy, Ecology Initiative, Iowa State University's Center for Agricultural and Rural Development, Natural Resources Conservation Service, Iowa Department of Natural Resources and Prairie Rivers of Iowa RC&D. The group has sponsored three years of on-farm, reduced N-use demonstration trials, coordinated an ongoing biological assessment of the river, begun an extensive watershed modeling project, received NRCS funding for Rapid Watershed Assessment of the Boone River, and formed a Boone River Watershed Association.

The creation of the watershed association underscores an important component of the BRWA project goals: local interaction and acceptance of the promoted management practices. The Ecology Initiative has provided funds for project management, a case study and baseline modeling. Participants are currently providing ideas for strategically placed conservation practices that are being incorporated into modeling of regional scenarios.

Neal Smith National Wildlife Refuge

A watershed-scale replicated experiment at the Neal Smith National Wildlife Reserve in Jasper County is led by an interdisciplinary team of 14 scientists from five different institutions and seven academic departments. A short-term project goal is to quantify the effects on sediment and nutrient loss when marginal lands are converted from perennial cover (e.g., CRP) to row crops, and to assess the environmental benefits accrued through the strategic incorporation of perennial vegetation in agroecosystems. The long-term goal is to improve knowledge among producers, managers and policy makers that will lead to more effective management of agricultural lands for both yield and ecosystem services important to society. The Ecology Initiative and the USDA Forest Service provided initial project funding, now supplemented by resources from the ISU College of Agriculture and Life Sciences and the National Science Foundation.

Activities:

- > Generated more than \$600,000 from diverse funding sources to support project development, implementation and ongoing data collection.
- > Provided instrumentation on 14 small watersheds for monitoring of surface runoff, soil moisture, groundwater and nutrient and sediment loss.
- > Supported five graduate students, nine undergraduate student research assistants, two undergraduate honors students, six international scholars and interns and one high school student from highly diverse backgrounds and ethnic groups.
- > June 2007 initial meeting of the Stakeholder Advisory Committee was attended by more than 20 people representing 15 different stakeholder groups and three research institutions, and overwhelming support for the project was expressed.
- > Five research publications (including those in preparation), organization of two conference symposia, and eight oral and poster presentations at events for scientists, practitioners, and policy makers.

*2005-2006 Director Jerry DeWitt
At the end of the day, I recognize that the right balance for Iowa agriculture does not come without boldness, and that boldness does not take root without the reality of balance. Hand-in-hand, they must be present and received by patient and open minds.*

Research proposals reviewed

Program leader Jeri Neal reviewed 28 Water Protection Fund, Watershed Protection Fund and U.S. Environmental Protection Agency, Section 319 water quality project proposals for the Iowa Department of Natural Resources and the Land Stewardship/ Division of Soil Conservation.

I-FARM

As the I-FARM computer model program evolves, the Ecology Initiative continues to support the I-FARM Advisory Committee, which includes representatives of NRCS, Iowa State University, ISU Extension, National Soil Tilth Laboratory, Oak Ridge National Laboratory and an erosion consultant. (On the web, see i-farmtools.org/)

New work on the model, developing an interactive web-based corn stover biomass planning tool, is occurring through a multi-partner, multistate Integrated Feedstock Supply System for Corn Stover Biomass project. To date the group has:

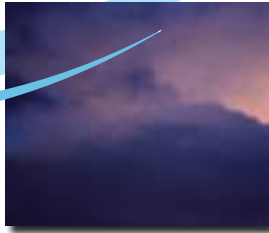
- > developed modules for single- and multi-pass stover harvest,
- > expanded and updated the equipment database to include biomass harvest equipment,
- > adapted and integrated the two new soil databases, NRCS's STATSGO database and the SSURGO database in I-FARM,
- > added a new, high-speed server to make I-FARM more accessible to the growing user community,
- > added industry data for liquid manure nutrient application, and
- > created a module for custom farming.

Nearly 4,500 users logged on to I-FARM in 2006 including real users and search engine web-bots. I-FARM has been used in university classrooms and computer labs and several demonstrations have been conducted at farmer workshops. A hands-on workshop at the August 29 "Growing the Bioeconomy" conference in Ames had 20 internet-connected laptops available for users. The model was presented at the Soil and Water Conservation Society Conference in Kansas City.

The expansion of Broin Companies in northeast Iowa provided the perfect opportunity to introduce the I-FARM tools to the region. ISU Extension educators and field specialists, Farm Service Agency directors and county conservation officials from an eight-county region around Emmetsburg attended a two-hour, I-FARM demonstration conducted January 4 by Robert Anex, Ed van Ouwerkerk and Jill Euken. Further educational programs and workshops for producers are planned for northwest Iowa in cooperation with ISU Extension and Broin Companies.

Sustainable biomass special project

"Development of sustainable biomass production systems through new crop rotations and the integration of perennial crops, nutrient cycling and advanced biofuel conversion technologies," an ecology special project, considers the effects of removing large amounts of crop residue from agricultural fields to meet growing markets for liquid fuels and other industrial products. ISU agronomist Matt Liebman and ISU agronomy graduate student Andrew Heggenstaller are exploring two alternative cropping systems and associated management practices that might generate large amounts of biomass feedstocks for bio-based industries while better protecting environmental quality. One cropping system focuses on double-crop sequences which could be incorporated flexibly into existing corn-soybean systems and should provide soil cover and active root systems through the year, thus reducing soil erosion and nitrogen losses while producing more biomass than a single crop of corn. Cool-season triticale, warm-season corn, sorghum-sudangrass, and crotalaria are compared to corn. The project also considers biomass production, carbon storage and nutrient efficiency by four perennial species (switchgrass, Indiangrass, eastern gamagrass, and big bluestem). A unique ash recovery process and analysis to assess the impacts of applying recovered materials back to the production plots is included in the work.



Policy Initiative

No specific call was issued for competitive grant pre-proposals in the Policy Initiative for FY07. Potential grantees were encouraged to consider submitting pre-proposals that meshed with the policy-related objectives or goals of the other two initiatives. One policy-related grant, "Adapting Land Retirement in Response to Iowa's Changing Agricultural Economy" submitted by the Iowa Natural Heritage Foundation, was funded and will be managed by the Ecology Initiative.

Both the staff and the advisory board continue to discuss and consider the best path for the Leopold Center to pursue in the policy area. Jerry DeWitt's blueprint of six core issues for the Center's future efforts includes work on local policy, rather than federal or national issues. This is viewed as the most appropriate area for the Center to conduct policy research and outreach.

Policy Initiative special projects and activities

The Center for Rural Affairs held Congressional briefings in October in Washington, D.C. on the Leopold Center-funded 2005 project, "Improving the impact and benefits of USDA research and grant programs to enhance midsize farm profitability and rural community success." Jerry DeWitt attended the briefing session. The initial CRA report is found at www.leopold.iastate.edu/research/policy_files/farm_programs.pdf

Convened a work group on April 13 of NGOs and farm organizations to formulate suggested farm bill ideas for Senator Tom Harkin (D-IA) as Congress prepared to construct the 2007 Farm Bill.

Responded to an Iowa legislator's request for analysis of population trends and livestock production in Iowa counties.

Agreed to a request for funding from the Iowa Organic Association to survey organic production, number of farmers, and transitional farms in Iowa. Results to be available in early 2008.

Received preliminary report on "Conservation Practices in Iowa," a multi-partner project headed by Cathy Kling, Center for Agricultural and Rural Development (CARD). The research effort/computer modeling exercise assembled cost estimates for meeting a specific set of environmental standards in the Raccoon River watershed.

Prior to writing the Summer 2007 RFP (Request for Pre-proposals), the Center held a listening session for Iowa and campus policy leaders May 15.

Jerry DeWitt took part in a national meeting in Chicago to develop a statement on genetics. He is part of a 17-member Task Force on Genetics for the Evangelical Lutheran Church in America (ELCA), which has been assigned to develop a social statement about theological, ethical, public and pastoral challenges arising from developments in genetics.

A land ethic changes the role of Homo sapiens from conqueror of the land community to plain member and citizen of it. It implies respect for his fellow-members, and also respect for the community as such.
~ Aldo Leopold

Initiatives fund competitive grants projects for FY2007

Each Leopold Center research initiative funds research, education, and demonstration projects to support its unique mission. In addition to Ecology, Marketing and Food Systems, and Policy-related work, research advancing dairy operations in Iowa received attention this year.

ECOLOGY INITIATIVE

The Ecological Systems Research Initiative funded 7 of 27 pre-proposals received from the Summer 2006 RFP. Another 18 projects received renewals for a second or third year of funding.

Ecology Initiative existing grants – Renewals for second and third year of funding

- > Total amount awarded – \$459,874
- > Total number of projects – 18

New Ecology grants – FY2007

- > Total amount awarded – \$213,455
- > Total number of projects – 7

NEW Agronomic, ecological and economic comparisons of conventional and low-external-input cropping systems, 3 years

M. Liebman, ISU agronomy; C. Chase, ISU Extension, Tripoli; and M. Wander, University of Illinois, Urbana-Champaign

Building on earlier work, this project aims to (1) measure crop yields, weed growth and weed seed densities in conventional and low-external-input (LEI) cropping systems; (2) assess labor requirements, energy consumption, input costs and net returns for conventional and LEI systems; (3) determine the impacts of soil microbes on the survival of weed seeds in conventional and LEI systems; (4) determine the impacts of conventional and LEI systems on soil organic matter and fertility; and (5) distribute results and insights through an outreach program.

Assessing soil quality impacts after conversion of marginal cropland to productive conservation, 2 years

T. Sauer, C. Cambardella and D. James, USDA-ARS National Soil Tilth Laboratory; and H. Asbjornsen, ISU natural resource ecology and management

This work with productive conservation will examine whether planting trees on low-productivity and/or eroded cropland, either in an agroforestry system or as afforestation, has a significant benefit for soil organic matter content and associated ecosystem services.

Bird nesting on rotationally grazed warm- and cool-season grass paddocks in southern Iowa, 1 year

J. Pease and R. Marquardt, ISU natural resource ecology and management Project investigators will consider what combination of grazing treatments on warm- and cool-season pastures provides the highest grassland bird species nesting rates, while offering vital economic returns to the owner/producer.

NEW Custom grazing in Iowa, 1 year

T. Opheim, Practical Farmers of Iowa, Ames This project will evaluate existing grazing arrangements used in Iowa, recommend how they could be improved, and create educational materials based on the findings. Fifty producers will be interviewed. Researchers will analyze data from an ongoing grazing and pasture rent survey done by the Natural Resource Conservation Service (NRCS). Results will be shared at a series of workshops and field days, along with information on successful models for custom grazing contracts in Iowa. An Iowa Custom Graziers Directory will be prepared.

Developing ecologically sound and profitable fertilizer and manure phosphorus management strategies, 3 years

A.P. Mallarino, ISU agronomy Project goals are to evaluate long-term impacts of a strictly response-based, low-input phosphorus fertilizer management program for corn and soybean, assess early plant availability of poultry manure phosphorus, and use the Iowa P-Index to estimate field phosphorus loss under alternative phosphorus management practices. The resulting data will support more efficient management guidelines for phosphorus.

Developing potatoes with horizontal resistance to the Colorado potato beetle, 3 years

D.G. Fisher, Maharishi University of Management, Fairfield The investigator continues ongoing research to develop potatoes with horizontal resistance to the Colorado potato beetle. The investigator theorizes that a process of recurrent mass selection can be used to build up resistance while preserving high yield.

Development and implementation of low input delivery systems for ethanol co-products in forage-based beef systems, 3 years

D. Loy, ISU animal science, and J. Sellers, ISU Extension, Chariton This three-part study will develop, test, and demonstrate low-cost and convenient delivery methods and supplementation programs using distillers feeds in forage-based beef production. This offers a management tool for graziers when forage resources are limited, and





an outlet for the increasing amounts of co-products generated by the ethanol industry.

Establishment of a field school for weed ecology and management, 3 years *M. Lieberman and R.G. Hartzler, ISU agronomy*

Investigators will collect data on weeds, soils, and crops from both large and small field plots under two-, three-, and four-year rotations and organize an interactive farmer/practitioner-focused field school. Educators will target weed ecology and management, with an emphasis on decision-making skills and capacities and easily adaptable, broadly applicable techniques and models.

Forage double-cropping demonstration, 3 years *I. Lamb, Iowa Native Lands; S. Barnhart, ISU agronomy; and M. Honeyman, ISU Research Farm* Research plots of cool-season legume crops (alfalfa and medium red clover) will be inter-seeded with warm-season native prairie species to generate management and forage quality evaluation data. The investigators are seeking forage alternatives with improved diversity that require fewer management inputs while exhibiting high-quality performance.

Grazing compatibility in and for future years, 5 years *E. Johnston, Southern Iowa Forage and Livestock Committee, and J. Klein, Natural Resources Conservation Service, Corning* Research will be conducted on wildlife compatibility with grazing and grassland species conversion from cool- to warm-season grasses. In-field education will be done with high school and college agriculture students to inform them about rotational grazing management and conservation.

The impact of biodiversity services in row crop production in annual versus perennial landscapes, 2 years *M. O'Neal, ISU entomology, and L. Schulte, ISU natural resource ecology and management*

Investigators propose to compare levels of insect biodiversity and insect pest suppression between integrated perennial-annual landscapes and landscapes dominated by corn-soybean production agriculture. This will offer a scientific foundation for enhancing biodiversity within landscapes dominated by annual row crops.

Integrated soil and weed management production systems for perennial food crops, 2 years

G. Nonnecke and C. Dilley, ISU horticulture, and T. Loynachan, ISU agronomy The goal is to provide strawberry and grape growers with sustainable weed management options and improved tools which they can use to monitor and assess the quality of their soil. Two conventional and two alternative weed management systems will be tested for their effects on selected physical, chemical, and biological soil properties.

Integrating hunting and grazing in the Loess Hills and south central Iowa on-farm management experiences, 1 year (extended) *J. L. Pease and A. L. Major, ISU natural resource ecology and management*

Two landowners cooperated in this on-farm work to measure activities of birds in rotationally grazed warm- and cool-season grass pastures. The investigators planned to collect real-life data in an attempt to validate prior experimental work on managing forages to benefit both livestock and wildlife. Unexpected changes in practices by the two landowners and health difficulties with the on-site researcher resulted in observational data, but no substantive trends or data.

Integration of natural seed treatments in organic and open-pollinated corn systems, 2 years (extended) *S. Goggi, ISU Seed Science Center, and K. Delate, ISU horticulture and agronomy*

The essential oils of aromatic plants will be screened for their antimicrobial properties against seed- and soil-borne corn pathogens. The investigators hope to find effective biological seed treatments that will enable farmers to improve early-planting seedling establishment and grain yields in alternative cropping systems (specifically those with low chemical inputs, such as sustainable, organic, and open-pollinated corn).

Iowa pawpaw trial maintenance, 3 years

P. O'Malley, ISU Extension, Johnson County In 1999 and 2000, plantings were established near Columbus Junction and Nashua to assess the viability of pawpaws as a horticultural crop for upper Midwest production. This project will provide production maintenance and recordkeeping for the previously established Iowa pawpaw trials and begin the fruit evaluation phase of the trials.



NEW Iowa recreational property ownership: Identification, contact and social dynamics of multiple use perennial landcover, 1 year

M. Wagner, ISU landscape architecture, and J. LaGro, University of Wisconsin-Madison, urban and regional planning Several barriers exist to the productive use of beef and dairy grazing on non-resident rural property in Iowa: lack of understanding about the extent and characteristics of non-resident owned land and identification of landowners and little understanding about their willingness to integrate contract grazing and other agricultural practices into their land use planning. The principal investigators are using GIS-based analysis to identify non-resident rural property owners in Fayette, Appanoose, and Clarke counties, and conducting telephone interviews with a sub-sample of non-resident landowners.

NEW The landowners' decision: Grazing and fire as management tools on Iowa grasslands and oak savannas, 2 years *L. Wright Morton, ISU sociology*

The project seeks to learn more about landowner attitudes, perceptions, and knowledge of fire as a management tool for controlling invasive species and enhancing conditions for native plants and animals on recreational and productive agricultural lands. There will be two surveys done, one in a watershed with existing prairie remnants and much potential for ecological restoration, yet under threat by invasive species and a second that will target the Middle Raccoon River corridor and oak savanna restoration.

New strategies to enhance sustainability of Iowa apple orchards, 3 years *M. Gleason, ISU plant pathology, and M. Liebman, ISU agronomy* This project aims to integrate the most sustainable pest management practices into an "environmentally best management practices" strategy that is more cost-effective and environmentally friendly than either traditional, spray-by-calendar management or conventional IPM methods. It also will explore the feasibility of incorporating hard cider production into the value-added product line of Iowa apple growers.

Optimizing legume establishment in winter small grains, 3 years *L. Gibson, ISU agronomy, and J. Singer, USDA-ARS National Soil Tilth Laboratory, Ames* Investigators will determine which winter small grain plant traits enhance forage legume establishment by frost seeding. The next step will be to develop a predictive tool to select small grain varieties that will enhance inter-seeded forage legume establishment and persistence.

Participatory ecology for 'Agriculture of the Middle': Developing tools and partnerships to bridge gaps among science, people and policy in landscape change, 3 years *L. Schulte and R. Atwell, ISU natural resource ecology and management, and L. Westphal, USDA Forest Service, North Central Research Station* Using community- and watershed-based strategies in two central Iowa watershed communities (Stanhope and Prairie City), the researchers conducted interviews to build rapport in preparation for a series of participatory design workshops. Partner organizations will help access key individuals within the watershed communities who are capable of initiating change.

NEW Quantifying the role of perennial vegetation in removing nitrate from groundwater in riparian buffers, 3 years *W. Simpkins, ISU geological and atmospheric sciences; R. Schultz and T. Isenhardt, ISU natural resource ecology and management; and T. Parkin, USDA-ARS National Soil Tilth Laboratory, Ames* Using field and laboratory experiments, this study will quantify the ability of established perennial plant communities to remove nitrate from groundwater and apportion nitrate loss via plant uptake versus denitrification. A Groundwater Nitrate Removal Index (GNRI) will be developed to help guide the strategic placement of perennial plants in riparian buffers across the agricultural landscape. Experimental sites will be established in existing riparian buffers in the Bear Creek watershed.

Quantifying the role of riparian management to control nonpoint source pollution of pasture and cropland streams, 3 years *J. Russell, ISU animal science, and R. Schultz, ISU natural resource ecology and management* This large-scale project will comprehensively study, both on-farm and on research farms, the sediment and phosphorus losses for a number of management variations on cattle grazing systems in and around riparian areas. The investigators are refining ongoing research to obtain better data on phosphorus movement associated with pastures and grazing systems.

The role of herbaceous woodland perennial diversity for improving nutrient uptake capacity of riparian areas – Phase II, 2 years *J. Thompson and C. Mabry-McMullen, ISU natural resource ecology and management* Earlier data showed that nutrient retention capacity of existing and newly-established forested riparian buffers could be significantly enhanced by the addition of native perennial herbaceous plants. Work to be done will help identify which shade-tolerant perennial species would be the best candidates to include in more specific recommendations.





NEW Screening winter triticale cultivars and breeding lines for forage and biomass production, 3 years *L. Gibson and J. Jannink, ISU agronomy*

This project will provide information for developing and selecting winter cereal grain varieties for forage and biomass production. The objectives of the research are to quantify the forage and biomass production in Iowa from commercially available winter triticale and rye cultivars, and screen breeding lines of winter triticale for forage and biomass production in Iowa with the goal of releasing new cultivars. The 2007 research plots include 15 commercial triticale cultivars, 19 experimental triticale lines, five commercial rye cultivars, and two rye/triticale blends.

NEW Soil moisture dynamics and plant transpiration under contrasting annual-perennial cover types, 1 year *M. Helmers and A. Kaleita, ISU agricultural and biosystems engineering; and H. Asbjornsen, ISU natural resource ecology and management*

Investigators hope to gain a better understanding of how soil moisture and plant water use vary under differing annual-perennial plant communities. This information will help land use managers understand how placement of different vegetative cover types on the landscape can influence the hydrologic balance and potentially enhance the sustainability of agricultural production systems. The study will provide data on soil moisture dynamics and plant water use within various plant communities.

Survey of mycorrhizal symbioses at Neal Smith National Wildlife Refuge, 2 years (extended)

I. Lamb, Iowa Native Lands; P. Drobney, Neal Smith National Wildlife Refuge; and L. Tiffany, ISU ecology, evolution and organismal biology Staff conducted a preliminary survey of mycorrhizal (root fungus) associations in remnant and reconstructed prairies at the Neal Smith National Wildlife Refuge to establish baseline data and experimental protocols for future investigation of this biological component of the soil. The symbiotic relationships between plants, soil, and fungi and their contribution to plant and soil vitality are poorly understood, and this project offers a starting point for understanding soil functionality in perennial plant systems.

Use of native cover crops to reconstruct native grasslands, 1 year *B. Wilsey and A. Blong, ISU ecology, evolution and organismal biology* The project is concerned with restoration of diverse grassland communities, and will seek to determine if native cover crop species facilitate the growth and establishment of native Iowa grassland species.

Variations in water and nutrient cycling and soil properties during agricultural landscape restoration, 5 years *H. Asbjornsen, ISU natural resource ecology and management; M. Helmers, ISU agricultural and biosystems engineering; M. Liebman, ISU agronomy; L. Schulte, ISU natural resource ecology and management; and R. Kolka, USDA Forest Service, North Central Research Station* The research team will examine differences in nutrient, water, and carbon storage and output for selected mixtures of annual and perennial plant communities, and provide educational opportunities about the results. They theorize that producers can reduce nutrient loads, improve water management, and maintain or improve agricultural productivity by strategic integration of perennial plants in agricultural landscapes.

MARKETING AND FOOD SYSTEMS INITIATIVE

The Marketing and Food Systems Initiative funded 16 of 36 pre-proposals received from the Summer 2006 RFP. Another three projects were renewed for a second year of funding.

Marketing Initiative existing grants – Renewals for second year of funding

- > Total amount awarded – \$75,203
- > Total number of projects – 3

New Marketing Initiative grants – FY2007

- > Total amount awarded – \$267,410
- > Total number of projects – 16

Analysis of transaction costs for small and midsize Iowa farmers, 1 year (extended)

C. Walter, ISU logistics operations and management information systems; R. Boeckenstedt, ISU Center for Transportation Research and Education; and C. Chase, ISU Extension, Tripoli Investigators will look at transaction costs incurred by direct-market farmers and producer networks that distribute products within Iowa. Case studies covered six Iowa-based businesses including two meat, two dairy, and two fruit or vegetable producers or producer groups. Transaction costs are cash payments and amortized costs associated with post-production handling, packaging, storage, inventory carrying and transportation.

Assessing needs and fostering agricultural entrepreneurship among immigrants in several Iowa communities, 1 year (extended) *Rick Tafoya, M&M Divide RC&D, Carroll* This planning grant will be used to assess the needs of existing and aspiring immigrant farmers in Carroll County.

Bridging the Gap: What does it take to bring small and medium-sized producers and retail and food service distributors together? 2 years

Ray R. Hansen, Agricultural Marketing Resource Center, ISU Extension A survey was conducted of key representatives in the Iowa food service and retail food sectors to determine how individual producers and producer groups can best work with this sector. A set of four informational workshops were held in early 2006 for farmers interested in selling to institutional food service groups and retail stores.

NEW Building a direct-to-consumer food distribution system in Iowa, 2 years *G. Huber, Practical Farmers of Iowa, Ames* The project laid the groundwork for a self-supporting, direct-to-consumer distribution system in Iowa. A working group will oversee the project and develop a business plan for an alternative distribution system that incorporates farmer and consumer ownership and control. Goals of the project are to increase marketing and sales of at least 20 farmers by at least \$100,000, and involve at least 150 consumers.

Business organization and coordination in niche hog marketing: Comparative analysis of two niche marketers, 2 years (extended) *J. Kliebenstein and B. Hueth, ISU economics* The two-phase project first considered the economic, business, and legal concerns for niche pork companies in these areas: timing, quality, process verification, business organization, and rate of return. The second phase focused on incentive design or premium payments to increase producer participation. Alternative premium payment systems will be compared and evaluated for effectiveness in improving pork quality and showing returns for quality improvements.

NEW Cash flow and product profitability analysis and improvement for small meat processors, 1 year *V. Anders, ISU Center for Industrial Research and Service (CIRAS); B. Martin, Iowa Central Community College, Ft. Dodge; and M. Wenger, ISU Meat Laboratory* The financial viability of small meat processing firms potentially can be improved through financial management education and assistance provided by the investigators. Tools offered include a direct cost software and cash flow analysis and other planning tools that will help these firms enhance product and services pricing, improve cash flow and understand the impact of various decisions on their businesses.

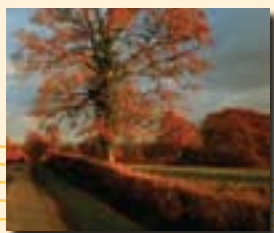
Community economic impact assessment for a multi-county local food system in northeast Iowa, 2 years (extended) *K. Enshayan, Center for Energy and Environmental Education, University of Northern Iowa* This project seeks to document the multiple economic impacts of a cluster of food and farm businesses in Black Hawk and surrounding counties. Included are direct-marketing farms, local vendors/suppliers of these farms, and grocery stores and institutions that buy locally grown products.

Determining the methods for measuring and the extent of economic and fiscal impacts associated with organic crop conversion in Iowa, 1 year *D. Swenson and L. Eathington, ISU economics, and C. Chase, ISU Extension, Tripoli* Investigators use input-output models to look at the economic impact of farmers who are transitioning to organic agriculture in Woodbury County where the county government approved property tax abatements for transitioning farmers.

Development of resources for organic food processors in the state of Iowa, 1 year (extended) *S. Beattie, ISU food science and human nutrition* While there are many resources available for sustainable and organic agricultural producers, resources are lacking for those who wish to process these materials according to certified organic and other processing-specific regulations. This project will develop web-based resources for food processors who are interested in processing organically grown foods into finished products and also will fund a workshop for organic food processors in Iowa and surrounding states. More information is available at www.organicfoodprocessing.org

NEW Development of a niche agriculture small business money map and process to disseminate information, 1 year *H. Van Auken, ISU finance* Limited access to consistent and reliable sources of capital appears to be a common problem for Iowa's small-scale niche producers. Tactics to improve access to capital include focus group discussions, surveys and development of a "pathways money map" to simplify capital acquisition. The pathways money map will be tested by niche agricultural producers to determine its usefulness.

NEW Effects of ambient temperature and transportation distance on the resulting pork quality, 1 year *R. Hansen and R. Clause, ISU Value Added Agriculture Program* In this study, the investigator will look at the effects of ambient temperature, transportation and transportation distance on the resulting pork quality of Berkshire hogs. The study will attempt to measure and correlate trailer configuration and loading realities to pork quality variation.



NEW Enhancing the sustainability of the University of Iowa food system: A factor-10 approach, 1 year *R. Honey and L. Wilson, geography, University of Iowa, Iowa City* A plan will be devised to increase the University of Iowa's local and regional food purchasing by finding creative ways to overcome some of the barriers that are present in the existing system. By forming partnerships among university faculty, staff and students as well as farmer networks and supporting organizations, investigators hope to increase local and regional food purchases and generate awareness about food system sustainability.

NEW Food product demand mapping, 1 year *D. Plazak and R. Boeckenstedt, ISU Center for Transportation Research and Education* Investigators will work on refining the Iowa Produce Market Potential Calculator web-based tool. They will develop a second tool for market sizing (i.e., demand only) for the range of food products listed by USDA/ERS, which includes meats, dairy and other products.

Functional quality management systems for livestock producers, 2 years *J. Lawrence, Iowa Beef Center; J. Mabry, Iowa Pork Industry Center; and M. Holz-Clause, ISU Value Added Agriculture Extension* Investigators will develop a curriculum to help livestock farmers participating in branded programs and niche markets create a Quality Management System (QMS) for their operations. The program will include an initial farm visit, two workshops and follow-up conference calls to help participants stay on track. Investigators will be recruiting small groups of farmers from among niche market pork producers, beef producers in the Iowa-80 Process Verified Program, family-owned commercial pork producers who outsource some services, and family-owned beef feedlots.

NEW High tunnel production and distribution model for produce, 2 years *R. Hansen and C. Hardy, ISU Extension Value Added Agriculture Program* Investigators will develop production and marketing resources that can be used by producers and producer groups to create business strategies related to high tunnel greenhouse technology. Models from this project will help determine optimal production scale based on true costs of production, processing and packaging associated with high tunnel systems.

NEW Investigating the feasibility of establishing food processing and distribution centers for western Iowa, 2 years *P. Garrity, Floyd Boulevard Local Foods Market, Sioux City; and H. Born, National Center for Appropriate Technology, Lewis* What are the purchasing requirements of regional institutional and wholesale food companies in western Iowa? The researchers will determine current demand for and production of local foods in the region. With this information they can examine how a centralized processing and distribution system could be designed to efficiently move products to consumers. Should such a system appear viable, they will conduct a detailed feasibility study for the project.



Investigation of economic feasibility of pasture-based dairy operations in northwest Iowa, 1 year *C. Mondak, ISU Extension, Orange City; and T. Olsen, ISU Extension, Storm Lake* Investigators will gather baseline data to determine the economic feasibility of pasture-based dairies in northwest Iowa. They also will look at the potential economic impact of adding 10 to 20 new pasture dairies in the region.

NEW Iowa Grasslands Products Calculator, 1 year *D. Plazak and R. Boeckenstedt, ISU Center for Transportation Research and Education* Investigators will develop a prototype mapping tool that compares county-level demand and supply for the production of fuel from perennial tall grass crops in Iowa. Resulting databases will show the potential capacity for grassland production in each county, potential demand based on fuel currently sold in each county and conversion rates for grass crops of primary interest to the Leopold Center. These databases will be linked to show potential markets for grassland production related to renewable fuels.

NEW Is the meat goat enterprise profitable and sustainable? 2 years *D. DeWitt and T. Olsen, ISU Extension, Storm Lake; and D. Morrical, ISU Extension, animal science* Investigators will develop a program to help meat goat producers track, analyze and evaluate expenses, income and profitability for their enterprises. The information will enable researchers and producers to identify leaks in profitability and establish long-term sustainability within the industry. Testing will involve five to 10 meat goat producers during the first year and another five to 10 producers in the second year of the project.

NEW New champions expanded scope: Developing an action plan for building an expanded regional food economy in Black Hawk and surrounding counties, 3 years *Kamyar Enshayan, Center for Energy and Environmental Education, University of Northern Iowa* This grant will focus on building capacity for a stronger regional food economy in the eight-county region around Black Hawk County. Project funds will be used to build on work already done by UNI's Local Food Project and develop a strategic plan for the region.

New food entrepreneurs - Value added enterprises for farm profitability, 1 year (extended) *R. Graves, Wallace House Foundation, and C. Pardee, Iowa Rural Development Council, Des Moines*

This project includes a “Common Ground” study circle process for Iowa producers, small food processors and policy makers to identify areas of public policy change that would enhance Iowa’s small food processing sector. Also included is creation of a web site clearinghouse for information for new food entrepreneurs and food processors in Iowa, a mentor’s listserv and handbook of basic Q&As for food entrepreneurs on regulations, food safety, financial resources and other types of assistance available.

Niche markets in the agricultural enterprise mix: Farm profit optimization and risk analysis, 1 year *S. Ellis, Iowa Beef Center*

The project investigator developed a computer-based interactive program, FARMOR-Niche, which considers the risks and benefits of niche markets. The program features extended enterprise budgets for producing livestock that satisfy niche market requirements, plus other expenses to be included in the analysis of a more integrated niche market.

Organic, natural and grass-fed beef: Profitability and constraints to production in the midwestern United States, 1 year (extended) *M. Smith, ISU Extension, Value Added Agriculture Program; and J. Lawrence, Iowa Beef Center, ISU*

This project gauges the average costs of production to achieve current market grade standards for organic, natural and grass-fed beef, and the costs of transitioning to these production systems. Investigators are developing a user-friendly computer spreadsheet tool that farmers can use to quickly evaluate the cost and return potential for these niche market products. Researchers have surveyed local direct marketers and current marketing companies and cooperatives across the United States to determine the sales growth for their projects in the next 10 years.

NEW Organic agriculture program viability study, 1 year *A.D. Dollisso, Western Iowa Tech Community College, Sioux City*

A survey will assess the long-term viability and interest for an organic agriculture program at the community college that serves the western Iowa region.

Plan demonstration farm to include farm business incubator and educational use, 1 year (extended)

L. Barnes, Marshalltown Community College, Marshalltown This project is developing a master plan for a new Midwest Center for Entrepreneurial Agriculture to be located on 145 acres adjacent to

Marshalltown Community College. Planners also will explore the idea of using the demonstration farm as an incubator for farmers who want to learn about non-conventional perennial crops.

Planning a facility for value-added farm business incubation and educational use, 1 year (extended)

L. Barnes and T. Deimerly, Marshalltown Community College, Marshalltown This project complements master planning for the new Midwest Center for Entrepreneurial Agriculture with a feasibility study for locating a community incubator kitchen on the property. Investigators will survey potential users, look at costs and equipment needs, and draft an operating budget and business plan for the kitchen.

A proposal to use the conjoint market analysis tool to examine the factors that influence consumer attitudes toward beef products, 1 year (extended) *B. Mennecke, A. Hendrickson and A. Townsend, ISU management information systems; D. Hayes, ISU finance; and S. Lonergan, ISU animal science*

This study will examine the consumer decision-making process related to beef purchases. Specifically, it will look at how much each attribute (organic, pasture-raised, and others) is valued by consumers relative to other attributes such as appearance and taste. The results could offer useful information that will help producers understand what attributes consumers see as most valuable.

NEW Researching and evaluating an effective web-based local food sales template, 1 year

L. Friest, Northeast Iowa RC&D, Postville The project will create and test a functional, versatile, on-line sales tool that addresses the needs of farmer networks marketing products to both institutional and household markets. Investigators hope this tool can be used by grower networks across Iowa and in other regions to facilitate the sales of locally grown foods within a manageable delivery distance. The Northeast Iowa RC&D will partner with the Iowa Valley, Prairie Partners and Prairie Winds RC&D areas in Iowa to develop and test the template for the project.

NEW Safe food handling on the farm: Foodservice operations’ expectations, 1 year

C. Strohbehn, ISU Extension, hotel, restaurant and institutional management; S. Beattie, ISU food science and human nutrition; and N. Smith, ISU Extension, Fairfield This grant will fund workshops to teach producers the best practices for safe food handling. Participants will focus on the human element in controlling contamination of food while on the farm, and address procurement concerns of retail foodservice operations. Topics related to safe food handling during harvest, post-harvest, transportation and delivery, and policy development will be covered. Producers attending the workshop also will learn how to communicate more effectively with foodservice operators.



Southwest Iowa institutional foods survey and producer training program, 2 years (extended)

S. Adams, ISU Extension, Malvern In the first year, the project conducted a survey to determine the potential for locally grown products in a ten-county area of southwest Iowa. A second phase of the project will establish a network of existing organic or natural producers to create a delivery system for products, and to recruit new growers.

Strategies to stabilize locally grown produce for year-round sales: A feasibility study, 2 years

S. Beattie, L. Wilson and A. Mendonca, ISU food science and human nutrition Included is a feasibility study for a small, mobile on-farm processing unit (for freezing) that could be used to provide year round, locally grown produce. The team, composed of microbiologists, processing quality faculty and an engineer, will look at costs, food safety issues, conduct a survey regarding willingness-to-pay by consumers and institutions, and determine where such units might be used. They also hope to develop plans and determine resources that would be needed for construction of a pilot unit.

NEW Strengthening the local and regional food system in the Iowa Valley, 1 year

C. Taliga, Iowa Valley RC&D, Williamsburg This grant will be used to bring together champions interested in local food production representing a cross-section of people from each county in the Iowa Valley RC&D region. A formal coalition will be established with a clear vision, mission, and strategic plan to coordinate and strengthen local and state food distribution efforts on a regional scale.

NEW A system to operate greenhouses and aquaculture in conjunction with Iowa's ethanol plants, 1 year

R. Hansen and C. Hardy, ISU Extension Value Added Agriculture Program A "gap" analysis will be conducted to determine the opportunities and risks associated with bio-refinery diversification through the utilization of waste heat and CO₂ streams. The project will establish a bio-refinery working group to evaluate the opportunities and constraints of building related business adjacent to existing biofuel plants.

POLICY INITIATIVE

The Policy Research Initiative funded one of one pre-proposal received from the Summer 2006 RFP. One project was renewed for a second year of funding.

Policy Initiative existing grants – Renewals in second and third year of funding

- > Total amount awarded – \$25,000
- > Total number of projects – 1

New Policy grants – FY2007

- > Total amount awarded – \$20,000
- > Total number of projects – 1

NEW Adapting land retirement programs in response to Iowa's changing agricultural economy, 1 year

D. Sand, Iowa Natural Heritage Foundation, Des Moines This project will generate a conservation policy white paper that recommends USDA program changes for selecting and managing agricultural lands in Iowa most in need of ecological restoration and permanent protection. It specifically will address how to protect land enrolled in the Conservation Reserve Program (CRP) that is currently under pressure by the biofuel market to be returned to crop production. The paper will be based on extensive stakeholder dialogue gathered at six meetings. (Project management linked to Ecology Initiative as well.)

Beginning and midsize farm bill analysis and education initiative, 2 years

M. Duffy, ISU Beginning Farmer Center and ISU economics; and T. Bruckner, Center for Rural Affairs, Lyons, Nebraska Project investigators analyzed farm policies that impact sustainable, midsize farmers and ranchers (those just beginning as well as those who are beginning again by converting to niche markets and/or sustainable farming systems). The analysis included the current farm program and 1031 like-kind exchanges, beginning farmer initiatives focused on access to land and markets, value-added and conservation programs that support sustainable farming systems serving high value market products, and new policy options for the 2007 Farm Bill.

Defining farm types: Policy research considerations, 1 year (extended)

ISU Beginning Farmer Center staff The common way for the government to classify U.S. farms is by gross annual sales. This project looks at other ways to categorize farms such as acreage, harvested cropland, or animal units. A simulation model will be created to gauge the impacts of a given policy on various sizes and types of farm operations.

Evaluating the Conservation Security Program utilizing the perceptions and economics of producer participation: Implications for land stewardship in Iowa agriculture, 1 year (extended)

J. Kliebenstein and D. Reich, ISU economics This study will focus on four watersheds in Iowa currently included in the Conservation Security Program (CSP), sampling farmers for their participation in and perceptions of the program as a means for measuring program effectiveness. Work will include a survey of changes in producers' behavior due to CSP payments, and a budgetary analysis of CSP participants' short- and long-run profitability using farm data collected from in-depth interviews.



Fostering an effective green payments program (original title: Early rounds: Farmers evaluate implementation of the Conservation Security Program (CSP), 2 years (extended) *R. Karp, (formerly) Practical Farmers of Iowa, Ames* Farmer knowledge and experience are being used to develop a set of recommendations and action steps to achieve effective CSP implementation. These recommendations will include identifying gaps and weaknesses in CSP procedures and providing ways to address these shortfalls. Encouraging a strong group of farmers committed to the program will help increase understanding and participation in CSP.

Improving the impact and benefits of USDA research and grant programs to enhance midsize farm profitability and rural community success, 2 years *J. DeWitt, ISU entomology* Research and analysis is being conducted with the Center for Rural Affairs to identify options and strategies to target more of current federal funding and improve the results of USDA efforts for beginning and midsize farmers. Four key federal agricultural research, marketing, and business/agricultural enterprise development programs were considered.

A survival strategy for small and medium-sized farms, 1 year (extended) *R. Ginder, ISU economics* Some smaller farms in the Midwest have used cooperative agreements to remain competitive in a difficult marketing environment. These farms will be included in a database and the investigator will evaluate the effectiveness of eight of these groups in enhancing the economic standing of their members.

Taking the next step: Building a platform for performance-based stewardship payments, 2 years *C. Flora, North Central Regional Center for Rural Development, Ames* How useful are conservation incentives in making significant environmental improvements? This portion of a larger study will unite predictions from a simulation model and an economic analysis in a southeast Minnesota sub-watershed to determine if and how the real cost of land change is supported by stewardship payments. Iowa's Rathbun Lake Watershed Alliance will be involved in making policy recommendations in this area.

NEW DAIRY OPTIONS

A special call was issued in 2006 for cross-initiative projects that targeted the challenges and opportunities for grass-based and/or organic dairies in Iowa. Three projects were funded for a total first-year award of \$76,375.

NEW Developing organic/grass-based dairies in southwest and southern Iowa, 1 year *D. Houghtaling, GROW Iowa Foundation, Greenfield* How can we encourage more people to consider grass-based dairy production and promote dairying as a viable value-added agricultural opportunity in southwest Iowa? The project

will develop different scenarios of grass-based dairy production possibilities while assembling a network of interested producers. Investigators will provide assistance in pasture development, crop production, animal husbandry and record keeping. Additionally, they will prepare a plan for a model grass-based organic dairy operation in southwest Iowa.

NEW Expanding grass-based organic dairy enterprises among southeastern Iowa farmers, 1 year *C. Taliga, Iowa Valley RC&D, Williamsburg*

Investigators will coordinate a regional effort to address the shortage of organic and grass-based dairy farms in southeast Iowa. They will survey dairy farmers in a 25-county area to provide technical assistance for those who want to transition to organic and/or grass-based operations. They also will offer technical assistance to small- to midsize dairy processors, and test samples of organic milk to document levels of conjugated linoleic acid (CLA) which is of interest in the health niche market. Four field days and two winter meetings are planned.

NEW Sustainable economic development through organic and grazing dairy farm establishment and transition, 3 years *L. Tranel, ISU Extension, Dubuque; and R. Tigner, ISU Extension, New Hampton* The project seeks to increase the number of grass-based dairy farms in Iowa, and will target beginning (younger) and organic farmers in eastern Iowa, along with conventional producers transitioning to organic. Technical assistance will be offered to producers and their consultants/advisors (lenders, nutritionists, veterinarians and suppliers). The investigators will develop training activities and resources for farm advisors and extension personnel.

REMAINING PRE-INITIATIVE COMPETITIVE GRANTS

The Leopold Center provided a no-cost extension to one project that was part of the earlier broad-based competitive research program.

LIVESTOCK MANAGEMENT

Evaluating pork production systems for niche markets, 3 years (extended) *D. Stender, ISU Extension, Cherokee* The investigator is working with several northwest Iowa producers to obtain on-farm data for comparing hoop and confinement operations. Information compiled on seasonal environment, nutrition, genetics, and operator management differences in sustainable systems appears in a database created for the project.

Twenty years and still kicking

The Iowa Groundwater Protection Act, highly regarded as a landmark piece of environmental legislation, was passed by the Iowa legislature in 1987. The Leopold Center for Sustainable Agriculture at Iowa State University was one of three university-based research units created by the law. After two decades, the Leopold Center had plenty of things to be proud of, and the staff and advisory board took the opportunity to mount a rousing year-long birthday celebration.

The highlights among the year's multitude of anniversary commemoration events occurred in mid-July when the Center sponsored two days of congratulations, soul searching, and visionary dialog about Iowa's agricultural future.

On July 10, five tours crisscrossed the state giving passengers a chance to see the Whiterock Conservancy, Bear Creek Demonstration Watershed, the Biomass Conservation Energy Center, vineyards, local food outlets, and grape and apple orchards. An anniversary banquet that evening brought together two of the four legislative sponsors of the GWPA, past and present advisory board members, past and present staff members from directors to secretaries, and some notable guests who had played roles in the Center's history.

July 11 saw 340 people at ISU's Scheman Building ready to sample a raft of Leopold Center experiences—panels, speeches, films, fish bowl discussions, a cooking

demonstration, an outdoor festival, musicians, and of course, a lunch featuring locally-grown food. Keynote speaker was Mark Ritchie, central Iowa native, Minnesota Secretary of State, and longtime agricultural sustainability advocate. Twenty-three breakout sessions hurtled down four "hot issue" tracks—Bioeconomy, Natural Resources, Food and Health, and People on the Land. A noon-hour festival sparkled with demonstrations, farm equipment, displays, posters, cloggers dancing, an electric car, and a rainfall simulator.

The Center promised to put on a "green" conference, so participants received recyclable water bottles, pens made from recycled U.S. currency, and a minimal amount of printed material (thanks to a CD containing a wealth of information about the Center suitable for downloading). Commemorative bags (manufactured from recycled plastic) were available for purchase.

Communications specialist Laura Miller and program specialist Malcolm Robertson co-chaired the conference but planning, exhibits, and presentations required assistance from all Center staff. Additional help and input came from advisory board members, farmers and representatives from sustainable agriculture groups. Some of these partners also highlighted their relationship with the Center at field days, conferences, fairs, and other events.



Leopold Center for Sustainable Agriculture Timeline

1987

Iowa Groundwater Protection Act (IGWPA) signed by Governor Terry Branstad. Legislation enacted to enable use of Oil Overcharge funds to begin Center competitive grant programs. First Advisory Board Meeting held. Center begins informal cooperation with Practical Farmers of Iowa. First grants awarded under leadership of acting director Robert Jolly. Search Committee begins work to hire a permanent director.

1988

Dennis Keeney is chosen as Center's first director. Center offices located in Agronomy Hall. First grants under Groundwater Protection Act awarded, including start-up funds for Nashua (IA) water quality research site. Issue Team concepts verified by Advisory Board and discussion leads to eventual formation of animal management, agroecology, manure management, cropping systems, alfalfa IPM, and human systems teams made up of researchers, farmers, and ISU Extension staff.

1989

First *Leopold Letter* published. Staff hiring begins. Part-time associate director position for agronomy established.

1990

First Leopold Center conference celebrates opening of Center with Paul Johnson as the keynote speaker. Center embarks on pioneering ISU work in animal waste management. Center offices moved to the National Soil Tilth Laboratory on campus. Education coordinator hired. Center supports 13 sustainable agriculture broadcasts via satellite. Federally funded MSEA (Management Systems Evaluation Areas) project joins in supporting research at Nashua site.

1991

Second statewide conference held in Ames. Technical editor hired. First in an ongoing series of sustainable agriculture fact sheets published with ISU Extension. Part-time associate director position in resource economics established.

1992

Center Progress Report Series established. Third statewide conference held. Strategic planning begun in preparation for first five-year review. Communication specialist hired. Grassroots Education Delivery Teams launched.

1993

Year of Iowa's great flood that washed out Leopold Center statewide conference, but regional conferences are held. Center review conducted in November 1993. Leopold summer intern program begun. New research program coordinator hired. Center receives Innovations in State and Local Government Award from the John F. Kennedy School of Government.

1994

In response to the five-year review, three farmers and one fertilizer retail dealer become ad hoc members of the Leopold Center Advisory Board. Regional conference workshop support program established. Fifth summer statewide conference; first with tours added. William Vorley is visiting agricultural scientist. Focus groups conducted statewide to assess Center's impacts.

1995

Center moves offices to Curtiss Hall. World Wide Web site established. Weed management issue team started. Agriculture and Community programming begun. ISU sustainable agriculture seminar series initiated under leadership of Jim Russell.

1996

Swine systems options conference stirs strong interest and changed attitudes toward alternate swine-raising technologies. Non-Farmers Guide to Agriculture project begun in Johnson County.

1997

Center receives Distinguished Service Award from Iowa Academy of Science. Marking 10 years since passage of the IGWPA, the Center celebrates 1997 as the Year of Water (YOW). Governor Branstad signs proclamation declaring Year of Water in Iowa; more than 70 groups sign on to participate and related programs continue throughout the state in 1997. Center funds alternative swine production systems (hoop house) initiative led by Mark Honeyman. Tenth anniversary conference held in late July 1997. Formal agreement reached with Practical Farmers of Iowa to conduct on-farm research and demonstration for the Center.

1998

LTAR (Long-term Agro-ecological Research) Initiative begins with Center providing funding for ISU's first organic agriculture specialist, Kathleen Delate. Center begins involvement in supporting local food systems work. Agro-ecology Issue



First Annual Report



First Center Newsletter



1987-2007



Team's work at Bear Creek is honored by designation as a National Agricultural Demonstration Site. Center participates in endowment of Henry A. Wallace Chair for Sustainable Agriculture at ISU. Center conducts second program review.

1999

Dennis Keeney, the Center's first and only director, announces his intention to retire at year's end. Allen Trenkle, Advisory Board member and ISU animal science professor, serves as interim director. Search process begins; board member Wendy Wintersteen heads search committee. Iowa legislature approves transition of four ex officio advisory board members to voting members. Agroecology issue team's work at Bear Creek is honored as one of the nation's 12 "showcase" watersheds. A second even more successful Swine Systems Options conference is held.

2000

Fred Kirschenmann, North Dakota organic farmer and nationally known sustainable agriculture leader, becomes the Leopold Center's second director July 1. Rich Pirog publishes two widely recognized papers on Iowa apples and grapes. Six prominent thinkers in the national sustainable agriculture community convene in July to help shape the Center's future. A grant from the Cavaliere Foundation supports activities that are part of the planning process. The staff presents to the Advisory Board a plan for three new research initiatives (ecology, marketing and food systems, and policy).

2001

In a series of Community Conversations, Center staff meets with citizens in Sioux Center, Hiawatha/Cedar Rapids, Mount Pleasant, Decorah, Lewis, and Greenfield to discuss the future of Iowa agriculture. The Iowa legislature administers the Center's first-ever budget cut of \$250,000. Reductions occur in long-term issue teams and the educational events program. "Niche and Value-Added Marketing: What's in it for me?" conference spurs the formation of the Pork Niche Market Working Group (PNMWG). A call for Leopold Projects and Partners 2001-2002 offers a transitional Request for Proposals.

2002

Community Conversations 2002 includes visits with urban/suburbanites in Sioux City, West Des Moines, and the Beavertdale section of Des Moines. "Future of Iowa Agriculture: A Policy Discussion" addresses the role that policy choices play in agriculture's future. The Iowa legislature transfers \$1 million to the state's general fund from the Leopold Center's earmarked funding in the Groundwater Protection Act. The Center will fund existing research projects but will seek no new research proposals during this fiscal year. The Center receives a \$100,000, one-year grant from the W.K.

Kellogg Foundation to support work on "Value Chain Partnerships for a Sustainable Agriculture" (VCPSA). Fundraising campaign begins.

2003

Center funds first Leopold Scholars within ISU Graduate Program for Sustainable Agriculture. "Concentration in Agriculture" conference attracts more than 200 people. VCPSA receives \$560,000 funding from the Kellogg Foundation and forms two new working groups, Bioeconomy Working Group and Regional Food Systems Working Group. Sustainable Agriculture offered as a minor for Masters of Business Administration (MBA) candidates at ISU.

2004

Ecology Initiative establishes program for grass-based systems research. ISU College of Agriculture honors Mike Duffy with Outstanding Achievement in Extension and Rich Pirog with Professional and Scientific Staff Award for Achievement and Service. Ecology Initiative administers \$200,000 U.S. federal government grant to complement Green Lands Blue Waters consortium efforts. Center signs on to help family farms that comprise the disappearing "Agriculture of the Middle." Center's challenge grant helps launch sustainable ag degree program at Marshalltown Community College.

2005

Center chosen as one of the "supported organizations" for the Garst Family's 5,000-acre gift of land for the Whiterock Conservancy near Coon Rapids. On November 1, Fred Kirschenmann becomes Distinguished Fellow of the Center. Jerry DeWitt, longtime ISU entomology professor and ISU Extension State Sustainable Agriculture Coordinator, becomes Interim Director of the Center for a two-year term.

2006

Leopold Center undergoes third university program review. Center receives \$500,000 grant from Henry A. Wallace Center at Winrock International for Value Chain Partnerships for a Sustainable Agriculture, extending the project to 2009. Center begins publishing monthly e-newsletter, *Notes from the Leopold Center*. Jerry DeWitt accepts a three-year term appointment as Center Director. Center assumes leadership of the Iowa Learning Farm project.

2007

Rich Pirog is named as Associate Director of the Center. Center marks 20th Anniversary of the passage of the IGWPA with varied events throughout the year, including a celebratory conference and tours on July 10-11.

